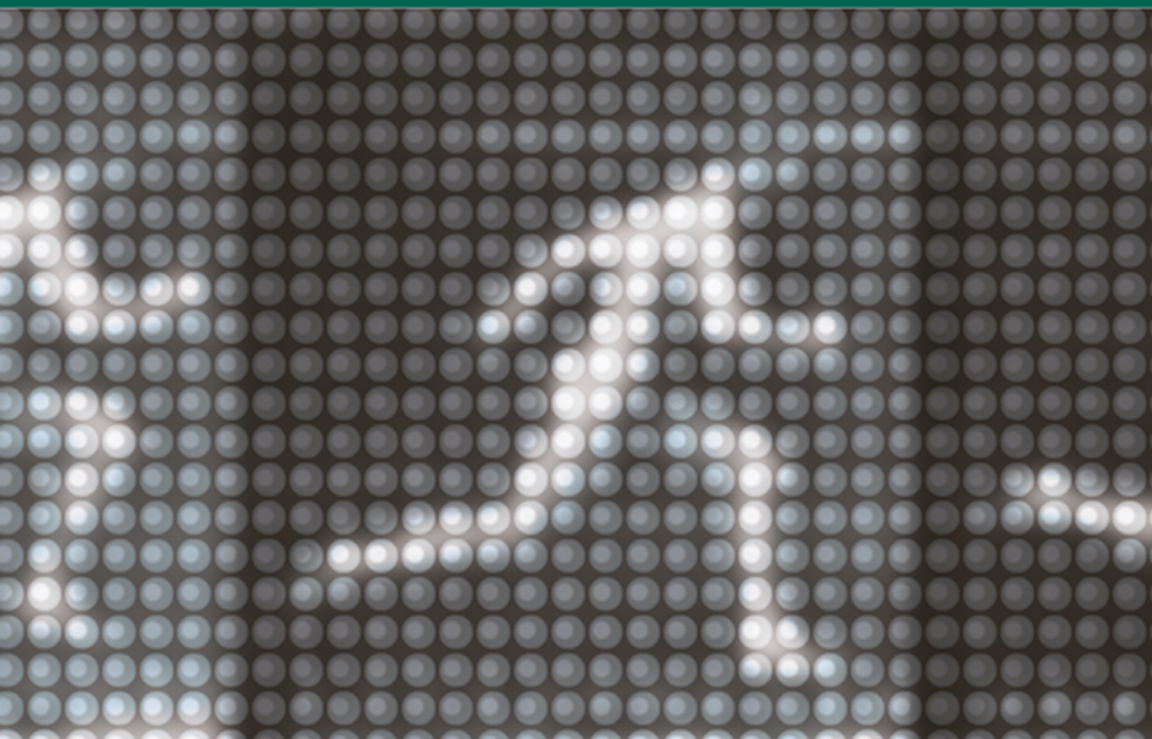MARK ANDREJEVIC

AUTOMATED MEDIA

Automated Media

In this era of pervasive automation, Mark Andrejevic provides an original framework for tracing the logical trajectory of automated media and their social, political, and cultural consequences.

This book explores the cascading logic of automation, which develops from the information collection process through to data processing and, finally, automated decision-making. It argues that pervasive digital monitoring combines with algorithmic decision-making and machine learning to create new forms of power and control that pose challenges to democratic forms of accountability and individual autonomy alike. Andrejevic provides an overview of the implications of these developments for the fate of human experience, describing the "bias of automation" through the logics of pre-emption, operationalism, and "framelessness."

Automated Media is a fascinating and groundbreaking new volume: a must-read for students and researchers of critical media studies interested in the intersections of media, technology, and the digital economy.

Mark Andrejevic is Professor of Media Studies at Monash University, where he heads the Automated Society Working Group in the School of Media, Film and Journalism. He is the author of *Infoglut: How Too Much Information is Changing the Way We Think and Know, iSpy: Surveillance and Power in the Interactive Era*; and *Reality TV: The Work of Being Watched*, as well as numerous journal articles and book chapters on surveillance, popular culture, and digital media.

Automated Media

Mark Andrejevic

Chapter 4 includes arguments that were first presented in Andrejevic, Mark (2017). "To Pre-Empt a Thief." International Journal of Communication 11 (2017): 879–91.

Contents

1 The Subject of Automation

The inventor, futurist, and Google guru Ray Kurzweil has secular fantasies of immortality and resurrection. Not only does he take "thousands of dollars" of vitamins a day to help him live until the technology is available to upload his consciousness into a machine (Blodget 2015), but he is collecting information about his deceased father so he can be reincarnated in the form of an AI (artificial intelligence). Kurzweil imagines that some combination of archival material and machine learning will be able to construct a digital version of his father that he can converse with – perhaps forever – if he succeeds in surviving until the "singularity" (when human and machine consciousness merge). Until then, he believes his paternal AI will be, for conversational purposes, not just an accurate reproduction of his father but, as he puts it, "more like my father than my father would be" (Berman 2011). At first glance, such a formulation sounds like little more than the hyperbole of a practiced futurist, albeit with an interesting post-Oedipal psychoanalytic twist. However, there is a lurking psychoanalytic insight in this formulation: that the subject is, in an important sense, non-self-identical: that is, there are aspects of the subject that remain unavailable to it. The paradox, then, is that a self-identical digital subject would not be like itself at all – it would be "more" coherent and fully specified than an actual subject. To say that a data-driven simulation might be "more like" someone than they are themselves is to suggest that it would be more consistent, perhaps living up to some idealized image of the self that the subject itself was unable to attain. However, if a subject is, in important ways, constituted by its gaps and inconsistencies, the attempt to "perfect" it amounts to an attempt to obliterate it. That Kurzweil would aspire to this version of perfection is unsurprising, given his goal of achieving digital immortality by shedding the spatial and temporal limits of subjectivity.

Perhaps predictably, the promise of technological immortality is inseparable from that of automation, which offers to supplant human limitations at every turn. When it comes to the fate of the subject, the forms of automation at stake are not simply mechanical (as in the factory) but informational. Creating a digital model of individuals relies on automated forms of data collection and information processing facilitated by digital media

technologies. Automated media thus anticipate the automation of subjectivity. Consider, for example, the familiar promise of data-driven target marketing: that with enough information, marketers can fulfill our needs and desires before we experience them. Predictive policing systems draw upon burgeoning databases to target crime at its moment of emergence. "Smart" interfaces are preparing to monitor the rhythms of our daily lives to track minor deviations that signal and anticipate shifts not yet detectable to us: signs of aging or depression, happiness, or illness. These developments are not simply matters of convenience: the notion that automation might more effectively "serve" subjects by anticipating their wants and needs – or, on the other hand, secure society more efficiently by pre-empting anti-social desires; rather, they address a perceived *problem*: the moment of uncertainty, unpredictability, inconsistency, or resistance posed by the figure of the subject. The problem stems from the fact that subjects can be unpredictable, recalcitrant, and otherwise irrational in ways that threaten systems of control, management, and governance. An automated subject would allow a fully automated society to run smoothly and frictionlessly – whereas actual subjects threaten to gum up the works. This is a familiar sentiment, for example, with respect to the deployment of self-driving cars, whose promoters identify the unpredictable behavior of humans as a stubborn obstacle.

There is an additional psychoanalytic twist to Kurzweil's account: the post-Oedipal attempt to resuscitate the figure of a father without an unconscious. The automated, immortal father reflects a version of AI as the data devouring big "other" (*deus quod machina*) that can make sense of the world in ways humans themselves cannot. In the face of the welter of automatically generated data that permeates the information landscape, the AI foregrounds the limitations of human information processing. The technological fantasy of automated information processing is that for the first time in human history, instead of simply conceding the impossibility of absorbing and making sense of all available information or relegating the process to an inaccessible metaphysical position, humans anticipate the possibility of building such a position for themselves – and putting it to work in the form of an enslaved mechanical god. The lure of such a prospect is that the perspective of totality would no longer need to be taken on faith but can be built out in reality. Finally, all can be known: no more doubts about human or natural risks: climate change can be definitely measured; we will no longer have to rely on the vagaries or deceptions of testimony but can go directly to the data record. Kurzweil's paternal fantasy writ large is the computerized installation of a real big "Other" – not imagined or symbolic, but actual.

Social De-skilling

Kurzweil is, admittedly, something of an outlier, despite his prestigious position at Google – but only in the sense that he has taken contemporary logics of automation to an extreme while nonetheless remaining true to

their inherent tendencies. His fantasy of the "singularity" as the end of finitude and thus subjectivity captures a recurring theme of the contemporary information society: the promise that, with enough information, anything can be automated, including, and perhaps especially, the subject. We have become familiar with this logic of specification in the era of large-scale data mining of personal information: it manifests itself in the claims by marketers to know what we want "better than we do ourselves;" in the deployment of a growing range of automated screening systems to determine whether we are likely to be good (or bad) students, employees, or citizens; whether we can be viewed as risks or opportunities, assets or liabilities. The subject is a target of automation because of the role it plays in consumption (as a desiring subject); in production (as the locus of labor and creativity); in politics (as voter, protester, or subversive); and security (as both victim and threat). All of these roles mark potential points of friction or resistance to the acceleration of social and economic processes that shape contemporary life. Digital platforms have made it possible to create and circulate information at an increasingly rapid pace, transforming the processes of both consumption and production.

We are experiencing what might be described as the reflexive stage of what James Beniger (1999) called a "control revolution." Beniger describes the ways in which electronic information systems helped rationalize the circulation and distribution of products to keep pace with their manufacture. Early forms of automated production combined with bureaucratic rationalization resulted in a "flood of mass produced goods" that, in turn, drew on steampowered transport that required "a corresponding infrastructure of information processing and telecommunication" (17). This production-driven process flowed outward from the factory floor as the speed and volume of manufacturing increased. Mechanized transport assisted in the circulation of both raw materials and finished commodities, but these in turn required new information control systems, including the telegraph and eventually digital communication technology. Media systems served not only as the "nervous system" for production and transport but also as the means of promoting consumption via publicity and advertising. With the rise of mass customization and a growing range of information services, we have reached the point at which increasingly detailed information about consumers, some of it generated by metadata about their behavior and communications, is fed directly back into the production process. Now the realms of consumption and sociality generate information products that flow back into factories and advertising firms to further rationalize production and advertising. Notionally, the automation of production would be complemented by that of consumption in a self-stimulating spiral.

In the industrial era, the focus on production foregrounded the figure of automated labor: the robot whose physical force, speed, endurance, and reliability promised to outstrip its human predecessors. However, as automatically generated information comes to play a central role in the

rationalization of production, distribution, and consumption, artificial intelligence "robotizes" mental labor: it promises to augment or displace the human role in communication, information processing, and decision-making. AI resuscitates the promise of automation in the mental sphere: to be faster, more efficient, and more powerful than humans. The activities that are automated in this context are not forms of physical labor, like welding or drilling, but of informational and communicative work: collecting, sorting, and processing information to generate correlations and decisions: the work of what Robert Reich dubbed the "symbolic analysts" (1992). These are meaning-making processes and rely on an understanding of what counts as relevant information, accurate understanding, and effective judgment. Such processes are distinct from forms of physical work, which can be automated without necessarily reconfiguring conceptions of significance and representation. Nevertheless, there is a tendency, perhaps an artifact of earlier discourses about automation, to portray human limitations as easily surpassed by automation. According to such accounts, the current generation of humans is to AI as John Henry was to the steam-powered drill: "In the next six years, AI will be able to translate better and quicker than humans. Within ten years, they will start replacing truck drivers … Need an essay written? Turn to AI" (Calderone 2018) or, as *Newsweek* once put it, "AI and automation will replace most human workers because they don't have to be perfect – just better than you" (Shell 2018).

Mental production is analogized to physical production: both can be sped up by augmenting or replacing humans with machines. However, the speed bump in conceptual processes is not simply the *pace* of human calculation (as it is in physical production) but also the complexities introduced by desire and judgment – the internal tensions that accompany the divisions in the subject: between conscious and unconscious, individual and collective, culture and nature. Automating communication processes therefore requires reconfiguring the subject: making it more like itself than it actually is, to borrow from Kurzweil's formulation. Typically, automation results in the abstraction of a task away from the motivations and intentions in which it is embedded. Thus, examples of automated "intelligence" tend to sidestep the reflexive layer of subjectivity in order to focus on the latest computer achievements: the fact that machines can now beat us in chess, Go, and some computer games. But there is little talk about whether the machines "want" to beat us or whether they get bored or depressed by having to play creatures they can beat so easily when there are so many other things they could be doing. That such observations seem absurd indicates how narrowly we have defined human subjective capacities in order to set the stage for their automation. We abstract away from human desire to imagine that the real measure of human intelligence lies in calculating a series of chess moves rather than inventing and popularizing the game in the first place, entertaining oneself by playing it, and wanting to win (or perhaps letting someone else win). Such activities really

lie at the heart of whatever we might mean by human intelligence, although they fall by the wayside when we consider examples of machine "intelligence." Perhaps this omission derives from the way we think about industrial automation. We are not interested in attributing intelligence or desire to industrial machines or drawing upon them as models of cognition and judgment: they remain embedded in a familiar division of labor between mental and manual, planning and execution, that absolves them from anything akin to intelligence or cognition.

To make this observation, however, is not to concede some inherent division between mental and material. The implementation of robotics relied on a long history of the de-skilling, de-socialization, and standardization of labor that helped drive down costs and routinize production processes to the point that they *could* be taken over by machines (Braverman 1998). The mental and material had to be systematically and forcibly separated to facilitate industrial automation. The production processes had to be disembedded from traditional labor relations, stripped of their social and mental character, and reconfigured as forms of unthinking, rote repetition. By the same token, information practices need to be de-socialized to pave the way for their automation. Communication and the subject have to be pried apart from one another, a process that I will examine over the course of the following chapters.

In other words, it is possible to trace a trajectory parallel to the social de-skilling of physical labor taking place in the communicative realm. This is not uniform across professions and practices, but it manifests itself in the communication and information systems that facilitate social fragmentation and the automation of information collection, processing, and response. In the academic realm, for example, the rise of "course software" that links to readings, administers quizzes, and calculates grades encourages the standardization of instructional procedures. In many cases, such as plagiarism detection, this software already relies on algorithmic sorting. As these platforms take over, they will likely rely upon increasingly intensive forms of "preprocessing" on the part of instructors and on new dimensions of automated data collection about students. The same can be said for college applications, job applications, health care forms and a growing number of online forms that feed into bureaucratic systems. Relatedly, the standardized formats of many social media posting systems facilitate their algorithmic sorting and processing. It is much easier to apply sentiment analysis to a 140-word tweet than to, say, an essay or a letter. As we fill out forms, participate in "preprocessing" information (by filling out a growing array of online forms), and place all of our content in the cloud, these all come to feel like steps on the path to automation. They systematically fragment and standardize the components of expression and evaluation, and in so doing run the danger of eroding underlying forms of coherence and overarching logics that cannot be broken down into their constituent bits.

The automated collection and processing of data promises to achieve what, drawing on Marxist terminology, we might describe as the perfection of "real subsumption." As David Harvey (2018) puts it, "real" subsumption hinges on the entry of surveillance and rationalization into the labor process – and thus on the rise of monitored factory spaces and waged labor. According to this account, hourly wage labor was unfeasible for work that took place in the home because of its unsupervised character. Early forms of home production, then, were compensated by the piece rather than the hour. Only when labor migrated into the supervised space of the factory enclosure could hourly wages be instituted. Since supervisors also had to be paid, these spaces were necessarily large enough to allow as many people as possible to be supervised by as few as possible (the guiding principle of panoptic surveillance).

The difference between formal and real subsumption lies in the fact that the latter reorganizes the labor process internally. The assembly line, for example, and the rise of scientific management provide examples of the reconfiguration and rationalization of the labor process: the worker's every movement is subject to both monitoring and management in the name of extracting maximum value from each hour of wage labor. The rationalization process reconfigures the physical actions, postures, and dispositions of the worker. The process of real subsumption is an ongoing one, facilitated by developments in monitoring technologies and innovations that reconfigure the labor process. Consider, for example, technologies that track delivery drivers moment by moment, or that monitor the expressions on the face of sales people when they interact with customers.

David Harvey has suggested that resurgent forms of home-based production and independent contracting (in the "gig" economy) represent a retreat from real subsumption (2018, 174), but this seems incorrect. They mark the migration of detailed monitoring systems beyond the factory walls. The physical enclosure of the factory is no longer needed when virtual enclosures created by electromagnetic communication networks capture more information than any human supervisor could. The gig economy is a creation of highly automated systems for coordinating the activities of workers dispersed across the landscape – in this respect it marks an attempt to perfect rather than to retreat from real subsumption. Information is at the heart of real subsumption, which relies on monitoring processes to minimize shirking and reconfigure the work process for maximum efficiency. The first step led to the second: enclosing workers in factory workspaces allowed for detailed monitoring of their activity in the name of efficiency and productivity. So-called scientific management – a reliance on detailed monitoring to increase efficiency by micro-managing worker movements – looked like a passing early fad in the early 20th century because it created an extra layer of labor: a watcher for every few workers. However, a level of scrutiny beyond the wildest dreams of the scientific managers has been resuscitated by the rise of interactive systems that can track employees automatically. Now supermarket scanners can monitor the speed of cashiers in

detail, GPS devices can track truckers and parcel delivery vans, and Amazon. com has patented a system that Frederick Taylor, the founder of "scientific management," would have loved: a wristband that tracks workers' locations as they move through the warehouse and buzzes if they try to pick up the wrong item (Ong 2018).

More generally, as mechanical efficiencies are pushed to their limit, there is a turn toward informational ones, in the hope that even more value can be squeezed out of production processes. We might describe this move toward data-driven real subsumption as capitalism's version of "fear of missing out": if everything is known, then all opportunities can be exploited – nothing is missed. Total information awareness based on the sensorization of the world allows moments of slack and lost opportunity to be reduced to the point of elimination. Those moments when the Amazon employee might have wasted precious seconds reaching for the wrong box, realizing the mistake, backtracking and then finally alighting on the correct item are recaptured in the name of efficiency, productivity, and profitability. A similar logic permeates our informated environment: the gig economy draws on networked information systems to put as many idle resources to work as possible: is your car sitting unused for the weekend? Rent it out. Do you have some spare hours in the evening? Drive for Uber, Lyft, or Amazon delivery. Is your house empty while you're out of town? Put it on AirBnB. Spare tools? Furniture? Time? – all can be put to work. Even our social lives are subject to processes of information-based rationalization: think of all the missed connections that characterized the pre-Tinder era: there may have been people only feet away in the same or neighboring bar who would have loved to have met one another if only they had known.

Automated media offload sociality onto digital systems just as industrialized mass production allowed for the offloading of physical labor onto machines, assembly lines, and, eventually, robots. Just as physical de-skilling paved the way for mechanized automation, social de-skilling anticipates new forms of data-driven automation. This has been the refrain of critics, ranging from the philosopher Hubert Dreyfus (2013) to cultural critic Nicholas Carr (2010) and MIT professor Sherry Turkle (2010). The automation of physical labor reserved for humans the role of planner and controller: the overseers in charge of the mechanized production line. Under changed societal conditions, automation also promised the possibility of liberation from labor as drudgery. By contrast, the automation of communicative processes envisions a surpassing of the pace and scale of human thought and interaction, which is why the technological imaginary tends toward post-humanism. If automated systems can outstrip both human physical and mental capacities, avoiding obsolescence means merging with the machine. The paradox of such a merger is that it imagines the subject can be conserved alongside the processes that work to displace it – that self-preservation dictates the creation of digital models of ourselves. Far from being an enhancement, however, the prospect of the automated self – as a corollary to our automated information worlds – offers a fundamental challenge to the figure of the subject, which, as

this book argues, stands for an irreducible point of non-totalizability. Complete specification does not enhance the subject, it liquidates it.

Kurzweil's assumption that an automated version of his father might be more consistent and coherent than his actual father is suggestive insofar as it inadvertently invokes an insight familiar from psychoanalysis: that subjects are non-transparent to themselves, since they are characterized by an internal gap or split – that of the unconscious – which renders them non-self-identical. In practice, this non-self-identity means that we find ourselves saying or doing things that we didn't expect or intend. For Kurzweil, the promise of automation is that this gap can be filled in with data, as if the unconscious might be made manifest with enough information.[1] The moment of the singularity envisions total information saturation and thus "completeness": all the data about the subject can be extracted and used to reconstruct it. This is perhaps the clearest definition of what it means to automate the subject: the elimination of lack, and thus of desire. Amazon's anticipatory shipping provides one example of the pre-emption of desire anticipated by the perfection of data-driven automation. Despite being based on increasingly comprehensive forms of consumer monitoring, the scheme was greeted with fascination and enthusiasm by marketers, including one who publicly gushed,

> think of the feelings you get when you see that an Amazon package has arrived at your door – it's delightful and exciting, even though you know what it is. I bet those feelings amplify when you don't know what's in the box … We like getting things in the mail, even if we didn't ask for them.
> (Kopalle 2014)

This response makes Amazon's plan sound so much like Secret Santa that it is worth emphasizing, in response, the obvious: that Amazon's plan charges consumers for their surprises.

Thanks to the combination of predictive analytics and just-in-time delivery, Amazon prefigures what might be described as umbilicular commerce: the ability to fulfill desire in advance, before it manifests itself: that is, to shrink to nothing the temporality of any unfulfilled want. Just as the umbilicus provides the fetus with what it needs before it can know or register its need – long before this can be consciously communicated to another human – pre-emptive shipping promises to sate consumers' desires. Imagine the moment of opening the door to discover the product one didn't know one wanted. The moment of desire remains only as an afterimage: an unrealized flicker tucked away in a foreclosed past. We are left imagining how much we must have wanted what we just received.

The Cascading Logic of Automation

In the digital era, this type of pre-emption gives shape to the contemporary promise of automation: that data-driven systems will know what we desire or

intend before we ourselves know, whether this be an act of consumption, transport, or violence. Analytics systems are already being developed to predict when people well get sick, what their "threat level" is for law enforcement, whether an employee is likely to quit, whether a job applicant will be a good employee, and whether someone is likely to have criminal tendencies (Yang et al. 2017). The scope of human behavior that such systems are poised to attempt to predict is limited only by the available data.

If, in the industrial era, the promise of automation was to displace manual labor, in the information age it is to pre-empt agency, spontaneity, and risk: to map out possible futures before they happen so objectionable ones can be foreclosed and the desirable ones selected. For reasons that will be elaborated in the following chapters, this book takes the promise of perfect pre-emptive prediction to be an impossible one – but the fact of its impossibility does not hinder the way in which it is mobilized to legitimate increasingly comprehensive forms of data collection and processing. This is not to deny that in many contexts data collection and analysis can assist in effective and efficient forms of prediction. Computer systems have an important role to play in predicting when mechanical parts will fail, making transport more efficient, and in placing probes on Mars (and much more). However, the attempt to assimilate human subjectivity and politics to such systems runs the risk of overlooking the structural and categorical differences between the two.

Automated analytics and thus automated media systems are preconditions for the development of predictive systems. There is a *cascading logic* of automation at work in such systems: automated data collection leads to automated data processing, which, in turn, leads to automated response. This is the overarching trajectory of the current information environment: toward automated action that takes place at the speed of pre-emption. Interactive sensor networks, such as, for example, the new generation of smart speakers, generate torrents of information that defy human information processing capacities. Smart speakers will be able to gather detailed information about sound in the millions of homes in which they are embedded, from the scrape of a chair leg on the floor to the individual idiosyncrasies of someone's typing, to the content of conversations (Google 2018). Once automated systems are used to make sense of the data, the next logical step is to automate response at scale – to, for example, devise automated curation systems that play music in accordance with the patterns revealed by the data not just of individual users but of the universe of listeners, allowing for strategies like collaborative filtering and predictive analytics to anticipate listening preferences. This logic replicates itself across the information landscape. Personalized learning platforms like Silicon Valley's Summit Learning Systems (funded by Mark Zuckerberg and his wife, Priscilla Chan) collect information about student performance on tablet-based assessments to custom-tailor learning modules to them (Bowles 2019). Details of people's in-home activities can be used to diagnose health conditions for the purposes of medical

intervention, employee screening, or marketing. Automated data collection leads to automated assessment, which, in turn, enables automated responses of all kinds.

Perhaps the culmination of this cascading logic of automation is the prospect of the so-called Internet of Things, or ubiquitous computing infrastructures that promise to redouble the object world in the form of an endless array of data-generating sensors. All of our appliances, spaces, and tools will collect information about how they are used, which will be in turn relayed to those who control the platforms upon which they rely. The avalanche of data generated by a sensorized world can be tamed only by the development of automated systems for processing it on a hitherto unimaginable scale. These systems, in turn, enable forms of decision-making otherwise inaccessible to human judgment: how to adjust, for example, the trajectories of hundreds of thousands of cars to shifting road conditions in real time, or to correlate reports of drug interactions dispersed across thousands of journal articles. The promise of automated information processing is to help humans make sense of the vast amounts of information recorded and generated by new forms of ubiquitous, distributed interactivity. Once the machines start making sense of the information, the next step is to have them put it to use. This cascading logic helps explain the anxiety generated by automation, not simply that it will supplant human labor (in the form of jobs) but also human autonomy: social, economic, and political. In this regard, automation performs a series of dialectical reversals, transforming processes into their opposite: sociality into hermetic isolation, politics into technics, autonomy into automatism.

The Dialectic of Automation I: Automated Politics

In recent years, we have received a crash course in the ways comprehensive voter databases have come to play a central role in targeted campaign strategies. As in every other realm of influence messaging, the proliferation of avenues for data collection makes it possible to gather unprecedented amounts of information about political audiences. Similarly, the development of the Internet as a news medium has contributed to an avalanche of information about candidates and issues – much of it false, deceptive, or otherwise manipulative. On both sides of the information equation (campaign messaging and political coverage), scarcity of information is displaced by data overload. The notorious case of the political consultants at Cambridge Analytica demonstrated how data collected on social networking platforms can be put to work for political purposes, including, in the US case, voter suppression (Burns 2018). Michael Kosinski, the Cambridge University researcher whose Facebook research served as the unintentional inspiration for the political consultancy Cambridge Analytica, used information harvested from Facebook to infer traits of individual users that could be used to attempt to influence their behavior. As one press account put it,

> Kosinski proved that on the basis of an average of 68 Facebook "likes" by a user, it was possible to predict their skin color (with 95 percent accuracy), their sexual orientation (88 percent accuracy), and their affiliation to the Democratic or Republican party (85 percent).
>
> (Kujawski 2017; Grassegger and Krogerus 2017)

The automated processing of harvested data led to a smorgasbord of inferential information: "Intelligence, religious affiliation, as well as alcohol, cigarette and drug use, could all be determined" (Kujawski 2017).

This is not news to intelligence organizations: the Snowden leaks demonstrated the extensive use of information harvested from social and communication networks for security and intelligence purposes. So it is perhaps not surprising that an intelligence consultant reportedly suggested a similar strategy for campaign purposes. The *New York Times* reported in 2018 that an employee of the Pentagon contractor Palantir suggested to the data scientists building Cambridge Analytica's political profiling technology that they "create their own app – a mobile-phone-based personality quiz – to gain access to Facebook users' friend networks" (Confessore and Rosenberg 2018). Despite the fallout from the revelation that Facebook enabled this kind of data harvesting to take place on its platform – and public wariness toward the machinations of political data mining – automated data mining and campaign messaging are here to stay (although Cambridge Analytica has been shuttered). As the 2016 presidential campaign in the US and the Brexit campaign in the UK demonstrated, the goal of targeted messaging campaigns is not just to convince voters but also to foment uncertainty, doubt, and mistrust in ways that disadvantage political rivals and suppress voter turnout.

Perhaps unsurprisingly, the technocratic solution proposed by members of the digital class is not less targeting but more. If the challenges of staying meaningfully informed in a context of information "glut" overtax the capabilities of human citizens, perhaps AIs should step in to help – at least according to MIT professor César Hidalgo, the director of the MIT Media Lab's Collective Learning group. Hidalgo has suggested that "digital agents" could gather and assess detailed information about issues to make decisions for voters based on what can be gleaned about their preferences. This is the Amazon.com solution to the age-old challenge of democracy: with enough information about voters, automated systems can know their preferences better than they themselves do. Taken to the limit, AI systems could, according to this approach, eventually replace the need for political representation altogether, substituting a Congress of AIs for that of legislators: "A digital agent could integrate our decision-making and help us make decisions at a larger scale," Hidalgo says. These digital agents could connect together to form an automated Congress of sorts, and "we could have a Senate that has as many Senators as citizens" (Anzilotti 2018). The result, unsurprisingly, is the eclipse of politics altogether, insofar as it relies on messy and inefficient forms of deliberation, interpretation, and representation. The promise of AI-

driven "democracy" is to dispense with the human friction that slows and distorts the decision-making process, as if governance, once freed from the vagaries of politics, would become more efficient and objective.

There are surely benefits to aligning political choices with expressed preferences, but politics relies on forms of sociality and community that are irreducible to aggregated preferences. As Cass Sunstein (2017) and others have argued, citizenship is a process that envisions the necessity of opinion formation through deliberation and communion with others: "The idea of political sovereignty … does not take individual tastes as fixed or given; it does not see people as simply 'having' tastes and preferences" (Sunstein 2017, 54). From a political perspective, we are not the sum total of our past choices and preferences; we are not even the sum total of our political commitments and priorities. The political process is one whereby we bring these commitments to the table with others, recognizing the forms of interdependence that enable our own individuality and autonomy. The process can be a fraught one and becomes impossible without conceding a shared baseline commitment to underlying norms of sociality and communication. In a world in which these commitments are the ongoing target of commercial media, which profit from hyper-customization, nichification, and polarization, one apparent solution is to offload the process of deliberation onto machines.

We might read this attempt as a concession to just how far the deterioration of any commitment to the notion of a common good or underlying commonalities of interest has progressed. If humans have undermined the skills they need to deliberate in good faith to reach shared political judgments, perhaps they can rely on the machines to do it for them. Whatever the motivation for transferring the messy business of democracy onto machines might be, the automation of politics augurs its dissolution.

From the perspective of many in the tech world, this may seem like progress. As Richard Barbrook and Andy Cameron argued in their germinal critique of Silicon Valley libertarianism, politics was the perceived problem, and efficiency and communication technology the solutions: "In this version of the Californian Ideology … [e]xisting social, political and legal power structures will wither away to be replaced by unfettered interactions between autonomous individuals and their software" (1996). Such an attitude toward the political is summed up by venture capitalist and PayPal founder Peter Thiel: "The task in this world where politics has become so broken and so dysfunctional is to find a way to escape from it" (Turner 2015).

Despite such technological fantasies, the horizon of politics remains an unsurpassable one – it is impossible to eradicate it entirely from technical processes as long as humans are involved, but the fact that the aspiration persists is telling. Those on the political right have worked hard to discredit politics in order to replace it with a consumerist model of society that foregrounds the individual at the expense of any recognition of the forms of sociality that underwrite historical conceptions of individuality. In keeping with this tendency, the promise of automation explored in the following

chapters is to encode the social so that it can be offloaded onto machines. The telling aspect of automation is the dialectical inversion it performs: the automation of participation transforms it into its opposite.

The Dialectic of Automation II: Automating the Social

Something similar happens in the register of sociality. Long-time digital media researcher Sherry Turkle has lamented the deficit of sociality wreaked by hyper-connectivity: the rise in playground accidents that coincides with parents and nannies focusing on phones rather than children; the college suitemates texting one another from room to room rather than talking; and a preference for controlled interfaces over face-to-face communication and communion (De Lange 2013). Turkle found that, for her respondents, managing sprawling social media networks can be so time-consuming that people look for the most efficient ways to communicate with one another: texting rather than phoning (which is seen as too intrusive and an outdated form of "mono-tasking"); shorthand signs of support and affirmation (likes, re-tweets, posts), asynchronous modes of interacting with friends and families, and so on.

There is a trade-off involved in upping our level of mediated interactions: we end up lessening or diminishing our face-to-face ones. This isn't just a matter of the proverbial couple staring at their cellphones, frantically typing away during what might once have been described as a romantic dinner. It is also an issue of managing the multiple forms of mediated communication that promise to overwhelm us with sociality. In an article titled, "Why Teens Aren't Partying Anymore," *Wired* magazine claimed that young people born in 1995 and later "spend less time at parties than any previous generation. The trends are similar for college students" (Twenge 2017). The article cited a first year student survey at San Diego State University that revealed students in 2016 spent seven hours a week less than students thirty years ago on "in-person social interaction" (Twenge 2017). As one student interviewed for the article put it, "My generation lost interest in socializing in person – they don't have physical get-togethers, they just text together, and they can just stay at home" (Twenge 2017). By the same token, face-to-face communication has been relegated to just one vector in a multidimensional interface environment as people manage multiple social contacts simultaneously or in rapid, serial fashion. There is little doubt that the frequency, pace, and scope of mediated contact has accelerated dramatically, but there is an anti-social dimension to hyper-sociality, as evidenced by the emergence of automated texting applications. A platform called Molly, for example, profiles users in order to craft automated responses to text messages. As one press account put it,

> Eventually … it will provide answers that are not already in its system using machine learning. By using all the information the app can gather about you (upon creating a profile, you have the option to add

social accounts from which Molly can learn), it will be able to predict an answer to a question relevant to you.

<div align="right">(McHugh 2018)</div>

Instead of communicating directly with an interlocutor, users interact with the bot that becomes their always-on networked presence. The emergence of such technology comes as no surprise: as the demands of constant connectivity pile up, automation provides a ready response. Google is developing an AI-based automatic reply system for text messages that will allow users to scan its suggested responses and send one off with a single tap. As the developers describe it, the system would incorporate context awareness derived from other social media apps and platforms: "The system can apparently work out what people are saying to you and suggest one-tap answers, but Google says it will go further, taking your location, your calendar and other bits of information into account" (Hal 2018). Through the dialectical reversal enacted by automation, the acceleration of sociality culminates in its implosion: the convergence of hyper-interactivity with the promise of digital solipsism.

Dialectic of Automation III: Security

There is a tendency in the examples of both politics and sociality toward a form of self-obliteration that recalls the Freudian formula of the "drive," which, as he puts it in his discussion of the pleasure principle, operates to "free the mental apparatus entirely from excitation" (Freud 2015). The insight here is that the goal of the drive is not so much to unearth new permutations of excitation but rather to achieve the stasis resulting from the satisfaction of an "instinctual impulse" (Freud 2015). Amazon's fantasy of anticipatory consumption, for example, frames the goal of shopping as the umbilicular stasis of the womb: the satisfaction of the consumer impulse before it emerges, and thus the perfection of the attempt to "keep the amount of excitation … as low as possible" (Freud 2015). Something similar is at work in the antipathy toward politics evinced by the version of automated politics in which deliberation, research, and reflection are no longer necessary components of citizenship. If humans are fundamentally "political animals," the impulse toward automation might be understood, in this regard, as inhuman: the eradication of the characteristic practices of human social life. Social media that automate sociality are in keeping with the prospect of endless quiescence as the endpoint of desire: the ability to dispense with the noisome toil of human social and political life. This tendency toward self-subtraction recurs in the repetition compulsion of social media: the gestures that, in the name of communication, amount to a barrier against engagement, a constant form of self-soothing that displaces the vagaries of human encounter. The frantic attempt to kill time associated with the acceleration of the consumption of information and sociality can only be fully achieved by automation.

Perhaps the most literal example of the connection between automation and the death drive is the development of so-called Lethal Autonomous Weapons (LAWs) that subtract human agents from the command chain of life-and-death decisions. Although the prospect of LAWs sounds like a far-fetched dystopian fantasy drawn from the pages of science fiction, leading AI researchers have expressed their concern that the technology "has reached a point where the deployment of such systems is – practically if not legally – feasible within years, not decades, and the stakes are high: autonomous weapons have been described as the third revolution in warfare, after gunpowder and nuclear arms" (Future of Life Institute 2017). Almost 4,000 AI researchers have signed an open letter calling for a global ban on the development of such weapons, and they have been joined by leading figures in the science and technology fields, including Elon Musk and Stephen Hawking. Tellingly, this letter focuses not on the automation of killing per se but on the possibility that LAWs could become widely dispersed and thus fall into the hands of bad actors:

> It will only be a matter of time until they appear on the black market and in the hands of terrorists, dictators wishing to better control their populace, warlords wishing to perpetrate ethnic cleansing, etc. Autonomous weapons are ideal for tasks such as assassinations, destabilizing nations, subduing populations and selectively killing a particular ethnic group. We therefore believe that a military AI arms race would not be beneficial for humanity.
>
> (Future of Life Institute 2017)

Unsurprisingly, some on the political right have come out strongly in favor of developing automated killing machines, providing a reactionary response to what they perceive as the soft-headedness of peaceniks and do-gooders. John Yoo, who wrote the notorious legal rationale for the use of torture during George W. Bush's invasion of Iraq, has mounted a strident if somewhat contradictory defense of Lethal Autonomous Weapons. His "humane" warfare rationale is that machines might prove to be more discriminating killers than humans:

> Critics are concerned about taking human beings out of the loop of decision-making in combat. But direct human involvement doesn't necessarily make warfare safer, more humane or less incendiary. Human soldiers grow fatigued and become emotionally involved in conflict, which can result in errors of judgment and the excessive use of force.
>
> (Rabkin and Yoo 2017)

When it comes to matters of judgment, in other words, there are circumstances in which machines might be superior to humans – an observation in keeping with the somewhat ominous acronym (LAW) suggesting the prospect of automated justice.

With respect to the concern that automated weapons lower the threshold for the use of violence, Yoo and his conservative co-author are dismissive: "Some worry that autonomous weapons might prompt leaders to turn more readily to conflict. But decisions about war and peace have much more to do with political leaders and their choices than with the technology available to them" (Rabkin and Yoo 2017). In the very next paragraph, the authors double back on their own argument: the real danger, they claim, is that the US is too chary of conflict – not eager enough to dive in when circumstances require. As they put it, "The greater risk today isn't that the U.S. will intervene impulsively but that it won't intervene at all, allowing serious challenges to intensify." It turns out that, for them, automated weapons are desirable precisely because they do what their critics bemoan: change the political calculus to make military intervention easier. At this point, the authors' true position emerges: they don't disagree that robotic weapons make it easier to intervene – they just disagree that this would be a bad thing: "Robotic weapons can reduce the costs that discourage the U.S. and its allies from intervening in humanitarian disasters or civil wars" (Rabkin and Yoo 2017). This is perhaps the most extreme version of automation's reversal: automated killing in the name of humanitarianism.

Taken to the limit, the automation of the sovereign power over life and death (as Michel Foucault puts it, to "make die or let live") endows the machine with the most extreme form of autonomy. What is disturbing about the subtraction of a human role in the decision-making process is not the standard science fiction trope that machines will rise up and turn on their human creators but rather the underlying truth of this trope: that mechanized human self-destruction is simply human desire projected into the machine. It is not just the machine we should be fearful of – it is ourselves.

As Grégoire Chamayou (2015) argues in his work on drones, to send robot "troops" against a human enemy is to radically reconfigure the traditional conception of warfare by subtracting the element of risk that serves as a form of justification for violence. Even in the most uneven of conflicts, some vestigial trace of the kill-or-be-killed logic persists – but robotic killing surpasses it entirely:

> Warfare, by distancing itself totally from the model of hand-to-hand combat, becomes something quite different, a "state of violence" of a different kind. It degenerates into slaughter or hunting. One no longer fights the enemy; one eliminates him, as one shoots rabbits.
>
> (Chamayou 2015, 91)

The prospect of automated weapons disarticulates the act of killing from conventional war. Biopolitical metaphors consequently characterize the discursive framing of asymmetrical warfare, which tends to treat the emergence of terror "cells" as systemic threats to be rooted out like foreign infections from the body. The enemy isn't shot like rabbits so much as it is eradicated

like a virus. Automated lethal weapons are portrayed as leucocytes circulating in the nation's body, destroying internal (or external) threats.

The model is one of purification, and the fight is endless. As it progresses, it threatens to generate more opposition and thus to accelerate pre-emptive violence. As Chamayou puts it,

> we should understand that an armada of hunter-killer drones … can win that race and eliminate individuals at least as fast as new ones are recruited … And never mind if, in a spiraling development of attacks and reprisals that is hard to control, the perverse effect of that prophylactic measure is to attract new volunteers.
>
> (Chamayou 2015, 71)

Eventually, those who identify and resist this logic will come to be seen as one more potential future threat to be acted upon in the present. Since robotic war dispenses with the two-sided character of warfare, it is waged not on actual combatants but on projected future ones – and the horizon of this future is indefinite (is someone a threat if they might commit a hostile act in a week, a year, or a decade?).

What level of certainty is needed to "eliminate" someone who might someday, in an unspecified future, commit a hostile act? Taken to the limit, there is a probability, no matter how small, that anyone might turn out to be a threat. Thus, the protection of life turns out to hinge upon its progressive eradication: biopolitics morphs into what Mbembe (2003) calls necropolitics: live and make die. Securing the population depends on increasingly efficient systems for addressing the spiral of violence associated with targeted, automated assassination: the growing "kill list" is programmed into the LAWs. The paradox of this form of biopower – identified by Michel Foucault (2008) in his lectures on biopolitics at the College de France – is that once killing is normalized as a routine method for securing the population in biological terms, a self-devouring logic of purification is unleashed. It is not clear that anyone can be absolved from the possibility that they might turn against this cycle of killing, and thus everyone becomes a potential target. The eradication of uncertainty takes on the guise of the death drive: the only way to ensure perpetual security is through complete pre-emption. The dystopian fantasy of the robots turning against their human creators turns out to be the disturbing subtext of security perfected: all possible threats pre-empted in advance – a return to the quiescence of the dust from which we came.

The Bias of Automation

Each of the reversals described so far revolve around the subject as a figure of lack and the attempt to fill in the lack by, in effect, dispensing with the subject altogether and displacing politics, sociality, and security onto automated systems. This vision of automated perfection departs from the familiar

utopian promise that automation might free us to pursue our desires by offering instead to free us from them altogether. Marx and Engels (1998) envisioned the prospect that reconfigured social relations might put technology to work to liberate the populace from the drudgery of alienated labor, creating a society in which it would be possible "to do one thing today and another tomorrow, to hunt in the morning, fish in the afternoon, rear cattle in the evening, philosophize after dinner, just as I have a mind, without ever becoming hunter, fisherman, herdsman or critic" (1998, 52). By contrast, the commercial deployment of automation – and its uptake in the realms of security, law enforcement, politics, and education – envisions not the liberation of human activity but its displacement. The machines won't free us up to fish or philosophize – they will do these in our stead – and according to the priorities set by those who own and control the automated infrastructure. This is automation not as liberation but as total control.

As we embark on the path of offloading a growing array of human interactions and decision-making processes onto automated media systems, it will be important to identify the tendencies of these systems. I have suggested that the attempt to overcome the finitude of human subjects can transform the promises of automation into their opposites – at least under certain conditions. The following chapters argue that the current deployment of automated media exhibits tendencies that recur across a broad range of social practices. Referring to the pioneering critical work of Canadian media theorist Harold Innis, I describe these tendencies as the "biases" of automation, three of which I examine in Chapter 2: Pre-emption, Operationalism, and Environmentality. We have already encountered the logic of pre-emption, which intervenes at the moment of emergence: of desire, threat, and opportunity. There is a specific temporality to pre-emption and an implied epistemology. Pre-emption dispenses with the question of causality: it takes as given the events it targets, relying on comprehensive monitoring and predictive analytics to stop them in their tracks. "Operationalism" refers to the displacement of narrative accounts and explanations by automated responses. Automated systems do not seek to understand but to act: they are not representational but operational. Drawing on the work of Michel Foucault (2007), I describe "environmentality" as a mode of governance that dispenses with processes of subjectification by operating directly on the environment of individual actors, shaping their conduct by intervening in their surrounding milieux. This form of governance thus relies on comprehensive monitoring combined with the ability to modulate the environment – to treat it as a flexible, programmable context, analogous to that of virtual reality. These "biases" are inter-related, connected as they are by automated systems and practices: they converge upon the attempt to surpass the limitations of the subject by approaching it from different angles. Subsequent chapters draw on this lexicon of biases to explore the implications of automated media for society more generally, ranging across examples from policing and politics to sociality and surveillance.

Chapter 3 engages with the recent debate over cocooning and "filter bubbles" and their impact on democratic deliberation and public culture. Such discussions have tended to focus on the range of political content available to users rather than on the crucial question of how this information is received and used. A wide range of information is necessary, but not sufficient, for participating in democratic deliberation, and much hangs on the formation of a "civic disposition" that facilitates good faith debate and a willingness to adopt the perspective of others. As recent political developments have demonstrated, the challenge to democracy is not a lack of information but rather a hardening anti-civic disposition that undermines the conditions for meaningful deliberation. This chapter considers the role that automated customization of news and information plays in eroding the forms of recognition and community without which the benefits of increased information access go unrealized (and are transformed into liabilities).

Chapter 4 draws on the case study of predictive policing to consider how automation reconfigures logics of simulation as pre-emption. In the context of data-driven policing, strategies of prevention rely on narrative explanations of causality and on situated and delimited conceptions of agency: fluctuations in crime rates, for example, can be attributed to underlying social causes (poverty rates, educational opportunities, employment opportunities, etc.). Policy approaches influenced by the logic of prevention seek to intervene at the level of underlying causes (economic and social programs, strategies of deterrence, and so on). By contrast, strategies of pre-emption shift the emphasis to addressing criminality at its moment of emergence, by, for example, sending officers to a particular address during a specific time of day so as to prevent an imminent act. The tendency is to shift the emphasis from the symbolic power of surveillance (that compels subjects to internalize the monitoring gaze) to its pre-emptive role (to discern, in real time, when and where a violent or criminal act may take place). The practical effect, once again, is to invoke the imperative of comprehensive surveillance.

Chapter 5 builds on these arguments to analyze the role of "environmental" governance in the so-called "smart" city. To act on the future in the present means collecting as much available information as possible in order to identify patterns and construct simulations. The predictive policing systems described in Chapter 4, for example, incorporate a growing range of variables – not just past crime patterns but, in some cases, temperature, atmospheric pressure, even phases of the moon. The information collection process is limited only by the available sensing network, and pre-emptive approaches embrace the imperative of extending these networks indefinitely. Thus, the development of smart cities, spaces, and devices can be understood as infrastructures for simulation and pre-emption: they extend the range and reach of data collection, constantly expanding the range of information collection to incorporate new senses and capabilities. This chapter focuses on the Foucauldian conception of environmentality (ibid., 200), arguing that this mode of governance shifts its attention away from the regulation of causes to

that of effects. The chapter also characterizes the smart city as "operational" in the sense outlined by Harun Farocki and Trevor Paglen, since automation displaces representational communication with data whose primary attribute is that it is "part of an operation" (Farocki 2004; Paglen 2014). Machines can sort through articles and email messages for key words and word clusters, but they can't tell us what they mean. They can, however, correlate this information with behavior to predict future responses and actions. Facebook doesn't know why we like someone, but it does know when we are likely to start dating or to break up, based on tracking our communication patterns. It may not know what news is true, but it does know what information gets widely shared, clicked on, and liked. The collapse of representation into operationalism makes it harder for humans to "see" how decisions are being made and thus to discern the reasons for their consequences. The fantasy of operationalism is the subtraction of the moment of human judgment. Thus, for example, lethal autonomous weapons, smart cars, and similar technologies anticipate what might be described as automated justice: life-changing decisions made without human intervention. The operational city envisions a framework for environmental-scale governance that enables comprehensive data capture and the real-time modulation of the urban environment to influence behavior.

Chapter 6 explores how an aesthetic of "framelessness," understood as the attempt to capture the view from "everywhere" or – what amounts to the same thing – nowhere, aligns itself with the logics described in the previous chapters. In practical terms, this means spreading sensors across the landscape: hence, the economic and political imperative to build fully interactive environments. The attempt to remove any notional limit on what data should be captured, and when, anticipates the possibility of a non-subjective gaze: one that is no longer situated, partial, or delimited. The goal of comprehensive information capture corresponds with an emerging aesthetic of framelessness: virtual reality, augmented reality, and even 360-degree video dispense with the limit of the frame. Something similar takes place in the realm of representations beyond the visual. Technologies offer to capture video of our entire lives, so that we can augment our human memories. These technologies portray the function of memory and narrative – their *selectivity* – as a flaw because they both rely on omission and scarcity.

Chapter 7 considers the fate of the subject in the context of automation, drawing on psychoanalytic theory to counter theoretical approaches that attempt to assimilate the subject to the object world. This concluding chapter considers what might remain of subjectivity in an entity whose desires, whether these relate to what to listen to, whom to vote for, what to buy, whom to love, or even what to write, are pre-empted. The automated "subject" – the one that is perfectly self-identical and thus fits neatly within the constraints of datafied predictability – is the one from which the moment of subjectivity has been subtracted.

Uniting the various arguments of the book is a critique of the implications of automation for politics and subjectivity. My driving concern is the tendency toward a post-political technocracy, one in which important societal decisions are increasingly offloaded onto automated systems. The political challenge for the foreseeable future will be contesting the subsumption of subjectivity and judgment to automated media. This concluding chapter also considers the considerable challenges faced by those who would counter the logics of automation. The entire economic system is geared toward the advantages of automation in terms of efficiency, productivity, and control. The migration of social life onto automated commercial platforms threatens to undermine the civic capital necessary for challenging the threat of automation. In this regard, the logic of automated society is interlocking and self-reinforcing: breaking out of it requires reconfiguring the ways in which we interact and communicate. An alternative to dystopian automation requires a wholesale rethinking of our media and education systems. Admitting this fact can have a dampening effect on hopes for change, but denying it renders change impossible.

Note

1 From a psychoanalytic perspective, the unconscious is structurally inaccessible to such an approach. It is not simply repressed content that can be data-mined by sidestepping the distortions of consciousness but the gap from which these distortions result. As Alenka Zupančič puts it, "the unconscious is not a subjective distortion of the objective world, it is first and foremost an indication of a fundamental inconsistency of the objective world itself, which … allows for and generates its own (subjective) distortions." (Zupančič 2008, 25).

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2   The Bias of Automation

In his work on the relationship between media and empire, the Canadian political economist Harold Innis (2008) observed that media are characterized by biases that influence their ability to convey messages through space and over time. Durable media such as stone tablets or sculpture are biased toward the persistence of messages over time. The engravers and carvers (and those who retained their services) were planning for the long term: several generations or more down the road. By contrast, those who consigned their messages to lighter, more ephemeral, portable media were concerned with the rapid transmission of messages across space – and thus with the projection of power across territories. As Edward Comor (2001) puts it in his discussion of Innis, "Efforts to control space and/or time also involve attempts to monopolize force which, according to Innis, involve a range of control activities from brutal oppression to the more subtle implementation of surveillance technologies" (283). Such an approach emphasized the affordances of particular media and the ways these were put to use by different power structures. In the contemporary context, for example, radio transmissions combine rapid transmission through space with ephemerality. Unless abetted by a supplementary medium (digital recording, for example), they dissipate, like speech, as they are emitted (even if they may live on in people's memories). Comor argues that, for Innis, the medium is not determinative of the social relations it enabled but rather reflects the tendencies of those relations. The implementation and use of a particular medium thus "also involved the context and, more particularly, the economics of its development and control" (Comor 2001, 281). Comor updates the notion of media bias for the digital era, arguing that "the Internet and other emerging technologies, organizations and institutions constitute the deepening predominance of an obsession with spatial expansion, organization and control through ever-shortening time frames and an accompanying neglect of historical and social conceptualizations of time" (Comor 2003, 106). Such an account seems borne out by the ability of a company like Facebook to expand its reach to more than 2 billion people globally. Indeed, the sheer scale of companies like Google, Facebook, and Tencent demonstrate how the Internet allows for

the creation of media platforms of unprecedented reach. With respect to durability over time, the announcement by MySpace in early 2019 that it had lost twelve years of music uploaded by its users because of a server migration error illustrated the potential ephemerality of digital media (Porter 2019). Similarly, rapidly changing hardware and software makes files inaccessible and apps unworkable. Anyone who lived through the 1990s likely has data in formats that have become inaccessible without access to special (or antique) equipment such as floppy disks or Zip disks.

The drive for rapid communication across space has given rise to what Lisa Parks (2018) has described as a vertical imperative: the attempt to control not just the airwaves but also airspace. In addition to the satellites used by broadcasters (and governments), the Internet ushered in an additional layer of verticality: Facebook is building solar-powered planes to beam Internet access to remote areas, and Google and Amazon are building drone-powered air delivery systems. Amazon has even applied for a patent for a warehouse blimp that could float over populated areas, beaming down special offers to be delivered by drone in a matter of minutes to the homes below. The territorial occupation of space by the "big box" stores is being displaced by what Eyal Weizman (in a very different context) has described as strategies of vertical control (2002). As in commerce, so too in warfare, for which drones allow for a different kind of rapid, targeted delivery, transforming any space they occupy into an asymmetrical war zone.

Digital media offer ample affordances for addressing the imperatives of information capitalism: speed, ubiquity, and long-distance control. As the reach and acceleration of information circulation outpace the capacities of humans to keep up, automation becomes crucial to companies operating on the global scale of Facebook, Amazon, Google, and Tencent. The bias of automation in such contexts is toward centralized, global control of high-speed communication: without automation, it would be impossible to develop a customized information system the size of Facebook's – or a search engine on the scale of Google.

All of which makes the question of the "bias" of automation an increasingly pressing one to frame within the context of the contemporary economy. To speak of bias in this context is not to invoke familiar questions about biased decision-making systems (although these are crucially important, as demonstrated by the groundbreaking work of scholars including Safiya Umoja Noble (2018) and Virginia Eubanks (2018)). Rather, it is to consider how the choice to implement automation within the existing socio-economic context carries with it a set of built-in tendencies that have important societal consequences. Much of the work of the following chapters is directed toward identifying these biases and considering their social implications and related pathologies. We are in the midst of a process of rapid ongoing media transformation at a speed that outpaces the ability of cultural forms to absorb and respond. Consider, for example, the impact that social media has had on the news industry: it is not just that the economic model is transformed by

intermediary platforms like Facebook but also that the shape, scale, and pace of information distribution shifts dramatically.

Abrupt changes in media technology have become increasingly common – consider, for example, the rapid penetration of television in the 1950s and the subsequent implications for culture and politics. Technological shifts in the media realm have also become increasingly *continuous* (between the 40s and the 70s, the main shift in television was from black and white to color, the emergence of cable TV and the VCR, whereas the period from the late 1990s to the 2010s included the development of LCD, plasma, digital, high definition, 3D, LED, smart TVs, DVRs, on demand, online streaming, Internet TV, OLED, and Ultra HD). People who came of age in the mid 20th century had the same phone for decades until the rise of mobile telephony and the advent of the smartphone. To get a sense of the scope of these transformations, it is important to look beyond the devices and interfaces to the infrastructures that support them. The same TV can play free-to-air and streaming content, but the latter relies on a very different set of commercial logics and technological affordances. The invention and ongoing development of transistor technology has had a crucial role to play in the creation of compact, portable technology, from the car radio to the personal computer – and the march of Moore's law made possible the rise of automated media on an unprecedented scale. These technological changes have facilitated dramatic reconfigurations in the way information is stored, shared, processed, and transmitted – with far-reaching political and societal consequences.

The myriad transformations associated with the rise of the Internet, mobile telephony and other forms of digitized, networked interactivity are such that the challenge we face is to step back and gain a sense of the big picture tendencies that unite them. In such a fast-changing environment, any book that focuses exclusively on the existing technology at the time of writing is bound to be outdated within a matter of months unless it can extract broader logics and tendencies that endure even as the devices change. The wager of the present volume is that the value of a theoretical approach to automated media lies in its ability to extract such patterns – and that these patterns in turn have value for understanding possible consequence of the development and implementation of the technology. The drawback of theoretical abstraction is that it can bulldoze complexity and nuance; the benefit is that it can reach a vantage point from which the apparently frenetic pace of change can be viewed as if from afar, allowing otherwise obscure patterns and logics to emerge. One potential danger of abstraction is the tendency to background the social contexts in which technological systems are embedded – to make claims about technological affordances and capacities that treat these as unconditioned by the broader social imperatives in which they are embedded. Automation could, for example, slow processes down as well as accelerate them, but the imperatives of contemporary society favor the latter tendency almost universally. In the current conjuncture, it is hard to imagine any motivation for automation unrelated to acceleration. Similarly, one of the

characteristic symptoms of technological idealism is a failure to take into account the economic models upon which new devices and affordances rely. It is tempting to imagine the new conveniences offered by technology as if these take place in an economic vacuum: "wouldn't it be great to have a personal bot that would analyze your political preferences alongside the profiles of individual candidates, and then decide which candidate you should vote for?" Even if this were not a disturbing abdication of democratic practice to the machine, it raises the question: who is going to develop this bot and pay for the infrastructure and data it requires? Who will maintain it and debug it? Unless each citizen has the technological expertise and financial wherewithal to develop their own bot, such a system will require an economic support system that will raise a host of questions about the imperatives, overt or covert, that shape its behavior.

In concrete terms, when Bill Gates (Gates et al. 1995) and Nicholas Negroponte (1995) first proposed, independently, the possibility of automated news and current events curation systems, they envisioned decentralized, personal "bots" or "software agents" that would be answerable to individual users. People would have their designated bot, housed on their devices, to serve them according to their expressed interests and priorities. Your bot would go out and find news specific to *you*; it would flag books you might want to read and movies you might want to see. This was a nice idea, in principle, for cutting through the welter of information and entertainment choices online. In practice, however, customized news arrived on the back of commercially owned and controlled platforms to service their advertising and marketing imperatives. The economic context has, unsurprisingly, come to play a crucial role in defining how the potentials of digital interactivity were materialized in practice. Such systems might operate very differently if they were decentralized and under the control of individual users, but this would require a different economic model and technological infrastructure.

To speak of a system of automation, then, is to employ a shorthand strategy for discussing biases of technological artifacts within a particular societal context. The following argument starts with the premise that automation in the sphere of media and information is driven by the attempt to generate value from data – whether for economic, political, social, or security purposes. In the broadcast era, TV had to be supplemented with expensive and time-consuming systems for capturing information about viewers. In the digital era, interactive viewing systems collect volumes of granular data about every detail of user activity. Analog books are infinitely expressive on their own terms but also comparatively mute about their readers, whereas Ebooks on digital platforms relay a stream of information about where, when, and how they are being read. This data can, in turn, be incorporated into the production process. Generating value from user data means finding ways to harness it to the engine of commerce, which helps explain the imperatives of speed, efficiency, customization, and prediction that shape the deployment of automated systems under current social conditions. The biases

of automation treated in the following chapters are inter-related and inter-locking, and they are not necessarily new, although the book will argue that their current configuration and its emerging tendencies are unprecedented.

This book's goal is not to provide an exhaustive or comprehensive description so much as it is to outline a framework for thinking about the tendencies and trajectories of automated media, understood as communication and information technologies that rely on computerized processes governed by digital code to shape the production, distribution, and use of information. When an algorithm decides what items to feature in your social media news feed or what music to play next, or if a "neural net" generates and compares controlled experiments to determine what ad you are most likely to respond to, that's automation. Processes of media automation go beyond conventional forms of content such as news and advertising to encompass the mediatizaton and informatization of daily life. Automated media are coming to permeate the world around us, mediating our interactions with one another and with the object world. We may not think of cars, for example, as media technologies or interfaces, but as they incorporate networked sensor systems and connect to cellular networks they become, as the *New York Times* puts it, "rolling listening posts" that can "track phone calls and texts, log queries to websites, record what radio stations you listen to – even tell you when you are breaking the law by exceeding the speed limit" (Quain 2017). As cars became increasingly reliant on computerized systems, they turned into rolling information troves: "A car can generate about 25 gigabytes of data every hour and as much as 4,000 gigabytes a day, according to some estimates" (Ratnam 2019). Further down the road, the creation and deployment of autonomous vehicles will transform cars into fully mediated devices, packed with sensors that collect and process a growing range of information.

The same might be said of the object world more generally, as it is enfolded into the so-called "Internet of Things," which redoubles familiar appliances in the form of communication devices. The tech giant Cisco predicts that communication between smart appliances will soon outstrip communication between humans:

> The Internet today is driven by smartphones, tablets, and personal computers: devices that deliver information for human consumption. In five years, those devices will be in the minority, outnumbered by machines designed to communicate with one another in 'smart' homes, offices, cities, and cars.
>
> (Wong 2017)

The term "social media" will take on new resonances as the objects in our lives become hyper-communicative. Our media will engage in non-stop chatter to one another (and their governing platforms) about us, and these "conversations" will provide the raw material for automated systems to make sense of and respond to, turning the lived environment into a thoroughly

mediated one. However, the metaphor of conversation only goes so far in this context: these systems are not engaged in open-ended dialogue, and their machine language is distinct from human language in important ways, the consequences of which will be explored in the following chapters. As the artist Trevor Paglen (2014) has suggested, machine language – the language of automation – is operational rather than representational, lacking the distinctive gap between sign and referent that characterizes human language, freighting it with the subjective desire that automation promises to eradicate. The status of desire will be a recurring theme in the following pages, tied in as it is with intersubjectivity, sexuality, and finitude. It is both the target of and the gap in automation, which remains caught up in processes whereby distinctly human imperatives are offloaded onto machines, where they can be reconfigured and misrecognized.

An Epistemological Break

There is, in this regard, a post-social bias in automation: the attempt to displace social processes – such as political deliberation – with machinic ones, as if sorting and correlating were the same things as judging. Such an attempt addresses the undeniable shortcomings in human decision-making – and in human subjects themselves. The promoters of automation emphasize the biases, frailties, and idiosyncratic impulses that permeate human judgments – and the cognitive limits that characterize human information processing. They also point to the inevitability of automation: in the contemporary information environment some processes are irreducibly automatic – such as the dynamic detection, logging, and sorting of close to two billion Web sites on the Internet. By the same token, some patterns cannot be detected without large-scale, high-speed data processing. But it is important to recognize that the choice to use such systems entails trade-offs – those associated with what might be called the biases of automation. These include the displacement of comprehension by correlation, of explanation by prediction and pre-emption, the triumph of efficiency over other social values, and the imperative of total information collection.

When, for example, an automated ad-testing system discovers that a particular background color yields a higher response rate from viewers than any of the alternatives, it does not seek to explain why this might be the case but simply documents a correlation. Correlational findings that remain robust over time are meant to be predictive rather than explanatory. The assumption here is that high-speed data processing can outpace explanation-based findings, in part because of the sheer number of variables it can handle and the speed of its data processing. This is the triumph of brute number crunching over hypothesis testing, comprehension, and explanation. For whatever is being predicted: future job performance, student success, potential threat, the approach is to throw as many variables as possible into the mix and see what surfaces.

We might come up with our own after-the-fact explanations, but these are speculative and, for the purposes of prediction, beside the point. Chris Anderson gestured in this direction with his notorious article on "The End of Theory," claiming that the interpretive social sciences had no future in the age of Big Data:

> Out with every theory of human behavior, from linguistics to sociology. Forget taxonomy, ontology, and psychology. Who knows why people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity.
>
> (Anderson 2008)

"With enough data," he argues, "the numbers speak for themselves." What they say, however, is limited: they simply identify patterns and, in some cases, the likelihood that such patterns will remain robust over time. Anderson draws on the example of Google's famous Page Rank algorithm – a defining example of automated media – to make his case: "Google's founding philosophy is that we don't know why this page is better than that one: If the statistics of incoming links say it is, that's good enough. No semantic or causal analysis is required" (Anderson 2008).

This might be the motto of the automated era: no comprehension required. Surely this is false, in the sense that domain-specific expertise is a crucial component of the development of automated systems, but it rings true as an aspiration: the prospect that with enough data, comprehension and explanation along with all their attendant challenges and limitations (when is an explanation ever complete, short of one that encompasses the world in its entirety?) will drop by the wayside. If the data say that the best predictor of future job performance is the browser used by an applicant to fill out an application, there is no real need to ask why (*The Economist* 2013). In the case of complex, high-speed decisions, the "why?" question only slows things down. In the case of correlations based on large numbers of variables, it is not always clear that the answer can be reverse engineered to make the "why" question meaningful. The former Google engineer who oversaw the neural networks that learned to recognize cat photos admitted that he didn't know how the system worked:

> We had the neural network watch YouTube for a week, we didn't tell it anything, we just had it watch videos for a week, and then at the end of the week we probed it to see what it had learned, and it learned to detect human faces, cat faces, a few other things …
>
> (Hof 2014)

The culminating promise of automated media is the advent of artificial intelligence that can generate useful but otherwise inaccessible and incomprehensible insights. This emerging epistemological paradigm challenges one

of the core principles of the Enlightenment: that knowledge is sharable because explicable. The revolutionary premise of the Enlightenment was that knowledge was not a series of occult proclamations to be accepted without explanation by the masses but something that could be evaluated and understood by all. The faculties for accessing knowledge were, in principle, universal, rather than monopolized by the few who could claim access to the mysteries. In this respect, Big Data and AI return us to a once familiar but ostensibly surpassed model of what passes for "knowledge": proclamations by authorities that remain, in terms of understanding, obscure and inaccessible. Large-scale data processing generates emergent forms of knowledge that are accepted "on faith" in cases where they cannot, in practical terms, be reverse engineered or explained: the interaction of thousands of variables may be too complex to parse, and the operations of neural nets are treated as functional but not fully comprehensible. If there is no explanation forthcoming for why a particular variable – the use of a specific browser for an online job application, for example – predicts future job performance, we are asked to simply accept the proclamation of the database.

This development raises the interesting post- (or pre-) Enlightenment question regarding the status of knowledge that is effective but inexplicable: who will have access to such knowledge, how will it be deployed, and with what forms of accountability? Those with the database and the processing power become the new high priests and oracles. However, the context has shifted dramatically: the distribution channels for information are not, in the contemporary context, fully monopolized by those with access to the "oracular" systems that generate actionable correlations. That is, control over knowledge and information distribution become delinked in ways that help explain contemporary communication pathologies. More broadly speaking, and seemingly paradoxically, the obverse of automated, correlational knowledge is the rise of conspiracy theory: it is no coincidence that these two developments gain purchase side by side. If generalized standards for explanation (drawing on shared understanding of evidence, argumentation, and explanation) fall by the wayside, thanks in part to the emergence of the correlational/predictive paradigm, then explanation is no longer the bedrock standard for actionable information, and the difference between knowledge and its pastiche is leveled. The monopoly of a priestly class over information, for example, helped ensure orthodoxy: that the inexplicable pronouncements which passed for knowledge were delimited to those promulgated by the class that controlled the storehouse of knowledge and its distribution.

When, however, transmissible, generalizable explanations are displaced as the basis for actionable information *and* the distribution and publication channels are thrown open, the path is paved for the widespread circulation of incoherent narratives like the QAnon conspiracy theory (which undergoes constant transformations but asserted that President Donald Trump feigned collusion with Russia in order to trigger the appointment of a special prosecutor (Robert Mueller) who was using his investigation as a cover for his real

task, which was to counter a planned coup by Barack Obama, Hillary Clinton, and the financier George Soros). Freed from the constraints of coherence and explicability, the information field is thrown open wide. Conspiracy theory becomes the "have-nots" version of correlational "knowledge," whose function is not descriptive but instrumental: the point is neither to explain nor convince but to mobilize.

Framelessness, or The Fate of Narrative

The emphasis on pattern recognition (over explanation) in correlational "knowledge" highlights a related bias of automation: the imperative of total information capture. Patterns can only appear if all of their pieces are included in the database. The former Chief Technical Officer of the CIA put it this way:

> The value of any piece of information is only known when you can connect it with something else that arrives at a future point in time … Since you can't connect dots you don't have, it drives us into a mode of, we fundamentally try to collect everything and hang on to it forever.
>
> (Sledge 2013)

Prediction, in this model, relies on correlation, and correlation relies in turn on making the world machine-readable – all of it, or at least as much as possible. The so-called Internet of Things is not just a bid to render the object world flexible and responsive but also to redouble it in the form of information: to transform the components of the environment into sensors – and to make these sensors increasingly powerful and broad-ranging. When Amazon introduced its smart speaker, it was only a matter of time before it was equipped with a camera (to capture more information about its environment). From there, it is a short step to a range of additional sensors and sensor capabilities, including facial recognition, mood detection, and increasingly sophisticated forms of image classification. Given the bias of automation toward total information capture, these developments are readily predictable – all but inevitable.

It is not hard to discern traces of the (impossible) imperative of total data collection across the media landscape. A security company called Persistent Surveillance Systems provides 24-hour video surveillance of entire neighborhoods from plane-mounted high-resolution digital cameras – a service that has already been trialed in Compton (Los Angeles) and Baltimore. Relatedly, in 2018, a photo of Shanghai reportedly comprised of 195 billion pixels went viral – allowing viewers to zoom in from a panoramic view of the city to individuals seated in cafes and appearing in building windows (Sachdeva 2018). Although the photo was stitched together from multiple images, it symbolized the prospect of total video

capture: the ability to see an entire city in every detail, in real time. For human viewers, such an image can function as little more than a novelty, since they would have to spend days or weeks poring over it to see every available detail. It is an information treasure trove, however, for automated image classification systems because it helps transform the city into machine-readable data that can be scanned at super-human speeds for patterns and anomalies. In this regard, the image captures one of the defining dynamics of automated data capture and processing: the fact that our sensors capture more information than can be made sense of by human viewers. Such systems confront us with our own limitations and finitude: a human viewer walking through Shanghai is unable to notice everything that can be seen or heard, and thus incapable of absorbing or recalling the totality of even his or her own potential experience. Just to notice something is to focus attention in ways that overlook other aspects of the "big picture" – this is what "noticing" means. We are partial, subjective, and finite in our perceptions and our recall – this is a defining feature of our subjectivity that comes to be figured as a flaw against the background of total information capture.

The principle of subjectivity – and finitude – is selectivity. We cannot experience *everything* (at least until the coming of the "singularity" envisioned by Kurzweil), which means that we construct our experience around gaps and omissions. We are, in this respect, creatures of narrative: the holes in our memories make possible our accounts of ourselves, and our experience of the world. A story about everything – the redoubling of the world in information form – would tell us nothing. We make sense of the high-resolution image of Shanghai the way we make sense of the city itself: by choosing a path through it, selecting some moments to focus on and letting others slip by. We cannot absorb the image in its entirety – a fact staged by the way in which the 195 billion pixel image is displayed: as a normal-sized photo that can be zoomed in on at selected points. The other display alternative would be a refiguring of the Borges parable on exactitude: not a map the size of the territory but a photo the size of the city.

Explanations are one form of narrative that play an important role in our lives: we tell ourselves stories that link past and present, cause and effect, often in highly contested contexts (consider the narrative struggle around global warming). The drive for control and understanding manifested in these explanatory stories is one of our most compelling motivations for narration. Narratives provide us with the sense that we can understand our world and, crucially, that this understanding provides us with some form of control. So the prospect of inexplicable knowledge generated by automated systems reconfigures our sense of how information functions under changed technological conditions. It is tempting to read what might be described as a post-Enlightenment turn (the dismissal, in some quarters, of Western rationality as reducible to the racist, colonialist, patriarchal conditions of its emergence) in terms of what Slavoj Žižek (2000) has described as the decline of

symbolic efficiency: the apparently diminishing purchase of explanatory narratives in the face of their multiplication in the contemporary media environment. This decline is palpable in the face of the fate of recent attempts to assert causal narratives in a range of areas – including, of course, climate change. It can be discerned in the political mainstreaming of conspiracy theory and even in the recent resurgence of flat earth theory (Poole 2016). One of the signal achievements of the Internet, perhaps paradoxically, has been to highlight the partial and incomplete character of dominant narratives by providing a seemingly infinite pool of alternatives.

Strategies of automation complement this perception of incompleteness with the fantasy of total information collection. Perhaps tellingly, recent theoretical formulations recapitulate a similar critique of narrative. Jane Bennett's (2010) "vibrant materialism," for example, reconfigures notions of causality in ways that burst the limits of narrative and explanation. In order to highlight the "agency" of matter, Bennett elaborates the multiple "agents" that contribute to any outcome: not just the human actors but the material conditions and their interactions. The "cause" of a power blackout is not just the deregulatory measures that create the incentive to manipulate the grid in ways that render it unstable but also "high consumption social infrastructure … unstable electron flows … wildfires … exurban housing processes, and … the assemblages they form" (Bennett 2005, 463–64). The list could go on indefinitely: meteorological conditions, cultural expectations that shape energy consumption, and the social and material histories that contributed to these (the human body's heat regulation system, the insulating properties of building materials, and so on). What Bennett refers to as "emergent causality" is indistinguishable from what the totality of the world to date has conspired to produce. Or, as Bennett puts it, drawing on the work of Bill Connolly: "the cause cannot be said to be fully different from the effect engendered" (Bennett 2010, 459). Such an approach disables narrative versions of explanation and causality, pushing, perhaps unwittingly, in the direction of total information capture. To identify the assemblage that culminated in any particular event would be tantamount to redoubling the world: the only plausible story would be an infinite story: the story of everything. In the case of the power outage, for example, it would not be enough to consider the role played by deregulation but also the factors that contributed to shaping the votes of those who supported deregulation and the factors that shaped those factors, ad infinitum. Such a descriptive approach recapitulates the CIA's formula for pattern recognition: to see the patterns, you need to collect *everything*.

To put it another way, an emergent conception of causality poses hurdles for causal explanations: to be accurate, complete and meaningful, they need to be comprehensive – but true comprehensiveness remains beyond the reach of finite entities like humans. The promise of automation, in this regard, might be assimilated to the impulse to overcome finitude (as suggested by Kurzweil's ambitions to reincarnate his father and make himself immortal). We can perhaps feel this pressure in the role that automated systems play in

our daily lives: the incitation to relentlessly accelerate our communicative activity to overcome the frustrating limits of our sensorium. Podcast fans, for example, can use apps that accelerate their listening by speeding up the recording and eliminating pauses. As one so-called "podfaster" puts it,

> Once I mastered it, podfasting was a kind of gateway drug to all kinds of super fast media consumption. I downloaded audiobooks and played them in double time … I also downloaded a Google Chrome plugin so I could speed up TV shows and movies on Netflix.
>
> (Lanquist 2018)

Face-to-face interactions constitute a sticking point for the acceleration imperative because they cannot be digitally sped up (although digital prostheses will surely change this, eventually). In this framework, convenience and acceleration go hand in hand: when, for example, universities start requiring lectures to be recorded and made available online (as is the practice in Australia), they will, perhaps inadvertently, encourage new platforms for speed watching, allowing students to schedule overlapping classes and attempt to absorb two or more lectures in the time of one face-to-face meeting.

Pre-emption

Of course there is a limit to this kind of media consumption – one that, unsurprisingly, paves the way for automated media consumption. Google has developed an app called "Talk to Books" – unveiled by Ray Kurzweil – which "will scan every sentence in 100,000 volumes in Google Books and generate a list of likely responses with the pertinent passage bolded" (Quito 2018). As one publicity release gushed, "Talk to Books will tackle any query you have, however trivial, esoteric, or abstract" (Quito 2018). The knowledge and information is out there, but it's far too much for us to absorb – we can feel this with every search engine query, every online visit to Netflix or Hulu, every encounter with a list of must-experience podcasts, music, literature, journalism, and on and on. The world has always been too much for any human to absorb fully, but now the technology promises to do it for us. In a sense, this is the promise of online curation systems: to "watch" and "listen" to everything in advance for us, serving as information tasters and testers. Apps once used by sound editors to, for example, remove pauses and filler words and sounds can now be used to speed up recordings for quicker consumption. But even then, there is little time to experience all that is available, so the systems can digest these for us, spitting out streams of information that align with our media diet of tweets, likes and shares. The resulting information cornucopia sounds like a potential heyday for content and information – but, as in other examples of automation, it enacts a dialectical reversal: we can encounter and attempt to make sense of thousands of books without having to read them. Taken to its limit, the attempt to master all available

content – to become fully aware of all that's out there – pre-empts the act of experiencing it. Pre-emption is, in other words, the antithesis of experience. One consequence, then, is the attempt to disarticulate knowledge from experience, a process that enables fantasies like that of Nicholas Negroponte, the founding director of MIT's Media Lab, who claims we will one day be able to "swallow a pill and know Shakespeare" (Gates 2014).

The drive toward pre-emption is another bias of automation – a response to the fate of explanation in the post-narrative realm of emergent causality. Pre-emptive strategies can be contrasted to preventative ones, which rely on causal explanations. If, for example, we know that elevated carbon emissions contribute to global warming, we can attempt to reduce emissions in order to slow climate change. As the contemporary policy inertia around climate change suggests, we live in a moment of crisis for the efficacy of such explanations – and this crisis, suggestively, is, in important respects, inadvertently conceded by Bennett's version of emergent causality, which would identify carbon as only one among many "agents" in the assemblage of global warming. As she puts it, "In a world of distributed agency, a hesitant attitude toward assigning singular blame becomes a presumptive virtue" (Bennett 2010, 38). She concedes the necessity of taking action but in necessarily (on her terms) tentative ways: "Do I attempt to extricate myself from assemblages whose trajectory is likely to do harm? Do I enter into the proximity of assemblages whose conglomerate effectivity tends toward the enactment of nobler ends?" (Bennett 2010, 37–38). Such measures remain qualified by her framing of the unanticipated consequences of even the best of intentions: any subjective intervention is always caught up in "a swarm of vitalities at play" such that its effects are rendered indeterminate:

> an intention is like a pebble thrown into a pond … it vibrates and merges with other currents, to affect and be affected. This understanding of agency does not deny the existence of that thrust called intentionality, but it does see it as less definitive of outcomes.
>
> (Bennett 2010, 32)

It would be difficult to find, from an ecologically minded writer, a more coherent expression of the familiar strategies for refusing action on global warming: many of them (often the more religiously disposed) dismiss the notion of human-caused climate change as a form of hubris, given the complex "swarm" of variables at play in climate change. And even if humans do have a role to play, even the most well-intentioned response could backfire, generating unforeseen consequences that exacerbate rather than ameliorate the situation.

The logic of pre-emption sidesteps the contemporary quandaries of causal explanations. As we shall see in the following chapters, it recurs in a range of contexts reliant on the logic of automated information capture and processing. Amazon draws on its increasingly comprehensive monitoring infrastructure to

pre-empt consumer desire (by addressing it before it emerges). Predictive policing programs rely on automated systems to dispatch officers to the scene of potential crimes, and medical algorithms identify patients likely to be hospitalized in order to intervene pre-emptively. The alleged virtue of such systems is that they rely on correlational patterns rather than causal narratives. If the correlation is robust over time, there is no need to interpret or explain it and thus no room for the deadlock of competing narratives that have derailed discursive processes. Pre-emption thus emerges as a strategy for cutting through the impasse of the demise of symbolic efficiency: the apparent inefficacy of evidence-based argumentation, causal explanation, and the attempt to adjudicate between competing narratives. Emergent causality provides the alibi for pre-emptive response, which widens its embrace to include as many components of the agentive "swarm" as possible.

When it comes, for example, to the threat of terrorism, strategies of prevention align themselves with familiar political and diplomatic rationales: seek out the root causes to see if they can be addressed. Partisans of prevention find themselves proposing measures to address the conditions that lead to radicalization – through diplomacy, infrastructure development, education, and so on. However, for critics of such an approach, the focus on underlying causes belies an outdated worldview and an ineffectual attempt to understand the ineffable. For example, during the Obama administration, a State Department spokesperson was roundly ridiculed by conservative commentators and media outlets when she argued for the importance of preventive policy approaches, observing that "we cannot kill our way out of this war" (Benen 2015). In addition to military engagement, she advocated going after

> the root causes that lead people to join these groups …We can work with countries around the world to help improve their governance … We can help them build their economies so they can have job opportunities for these people.
>
> (Benen 2015)

The conservative position, as evidenced in the withering condemnation of the Obama State Department for proposing the soft-headed "do-gooder" approach of "jobs for jihadis," was, by contrast, full-bore pre-emption. The pace and scope of the threat, from this perspective, leave no time for comprehension, which carries overtones of complicity: as if to understand the factors that contribute to the terrorist threat was to somehow justify them – with the added admonition that comprehension is futile and beside the point. As one commentator put it, in response to the State Department representative's comments: "the people we are fighting are zero-sum barbarians who glory in brutal war motivated by religious fanaticism" (Greenberg 2015). Such an approach advocates precisely the bloody logic of "killing one's way out" of the war on terror. Addressing the threat at its point of emergence requires comprehensive surveillance and thus mobilizes the logics of

automated information collection and processing. As Ben Anderson (2011) puts it, in his discussion of drone warfare, when a threat is emergent, then pre-emptive strategies rely on "the continuous attempt to know all of life without limit or remainder that is central to 'full spectrum' dominance. Knowledge of the environment must be total, even if the environment cannot be totally controlled" (233). The attempt to document the entire "assemblage" displaces the narrative logic of causation that underwrites preventive approaches. Pre-emption, by contrast, relies on total information capture in order to arrest emergent processes.

Environmentality

In this respect, the bias of pre-emption relies on forms of control that the theorist Michel Foucault described as "environmental." It is a fitting term to approach the prospect of surveillance and intervention built into an environment of smart devices, spaces, and cities. The notion of "environmental" governance does not refer to the term in its ecological sense but to the ways in which the lived and built environment becomes a medium of monitoring and control. Such an approach has clear connections to the sensorization of lived space and the attempt to achieve "total information awareness" (a term that made its way into the mainstream via Admiral John Poindexter's US Office of Information Awareness following the September 11 attacks in the United States). "Environmentality" as a governance strategy refers, according to Foucault, to a shift in the target of control from the individual subject to the broader context within which it operates: a focus upon "the perpetual intrication of a geographical, climatic, and physical milieu" (Foucault 2007, 23). As Jennifer Gabrys (2014) notes, Foucault was interested in the ways governance could operate through the modulation of the "milieu." Milieu-based governance relies on systems in which, as Foucault puts it in his lectures on "biopolitics", "action is brought to bear on the rules of the game rather than on the players … in which there is an environmental type of intervention instead of the internal subjugation of individuals" (Foucault et al. 2008, 259–60). This last point differentiates "environmentality" as a mode of governance from *discipline* insofar as the former dispenses with the internalization of the monitoring gaze. The rise of automated systems supplements and reconfigures governance by transforming the environment into a sensor and a remotely controlled system of modulation. A floor capable of tracking the footsteps that traverse it can be configured, for example, to detect and cushion a fall. Customized monitoring and response is the watchword of "smart" spaces, which fold the physical environment into what Foucault described as the "milieu" – the space of activity that can be targeted for intervention to influence behavior.

We can already discern the infrastructural formations that are directed toward this model of governance, including not just the flexible and sensorized systems associated with the development of smart cities but also the infiltration of commercialized, centralized and interactive monitoring

networks into domestic space. Amazon has patented a system that would deploy its Echo smart speaker system to track users' mood and health, allowing for the customization of in-home advertising. As one news account put it,

> If the Amazon voice assistant determines that you have a sore throat, the system would "communicate with the audio content server(s)" to select the appropriate ad. The system would listen to people in order to determine whether they might be amenable to advertising queries such as "would you like to order cough drops with 1 hour delivery."
>
> (Kircher 2018)

The goal of comprehensive monitoring is to capture forms of behavior that are unaffected by self-conscious awareness of surveillance. Comprehensive monitoring has as its goal the capture of the rhythms of daily life to predict future activity so it can be anticipated and shaped (or preempted) through environmental modulation.

In light of this mode of governance, it should come as no surprise that the Nobel Prize for economics in 2017 went to an economist who explored the logic of what he describes as "libertarian paternalism" (Thaler and Sunstein 2009): the ability to control behavior through modulating context and environment. The process of automating this mode of control was anticipated by Gilles Deleuze's often-cited observation that post-disciplinary controls "are a modulation, like a self-deforming cast that will continuously change from one moment to the other" (Deleuze 1992, 4). Certainly, informated processes are devoted to expanding the reach of the workplace – typically for those working as "symbolic analysts" – but the model of environmentality accompanies the blurring of the boundaries of labor, leisure, and domesticity, all of which generate the data that can be used for the purposes of control via environmental modulation.

The transition to environmentality marks a shift in the imperative of capital as it runs up against the limitations of disciplinary homogeneity and exploits the benefits of automation. Environmentality allows for a generative space of diversity to displace the uniformity of mass society – each individual unfolds new possibilities for increasingly differentiated goods and services. It would be impossible to tailor these goods and services on an increasingly niche scale without the assistance of automated systems for data collection, processing, and response. The same is true of other realms of environmental governance: the full spectrum of social life provides the raw material for the patterns that underwrite pre-emptive strategies. If disciplinary control thrived on the homogeneity of mass society, environmental governance relies on the range and diversity of the post-mass moment: the goal is not to enforce behavioral norms but to unleash the full range of activity that will allow patterns to emerge as clearly as possible in order to correlate, predict, and pre-empt.

The following chapters draw on the conceptual architecture provided by these "biases" of automation – the offloading of the social, the displacement of narrative, the role of pre-emption, and the deployment of "environmental governance" – to identify the distinctive characteristics, implications, and trajectories of automated media. We live in an epoch of automated mediatization – a time when media technologies and practices are coming to permeate life in unprecedented and unanticipated ways that are facilitated by and impossible without automated data collection, processing, sorting, and response. Automation has dramatically important social consequences for labor, warfare, and the economy, but underlying all of these is the automation of the information and communication technologies upon which these rely. The transformations in these technologies have taken place so rapidly that we struggle as a society to develop the conceptual and cultural vocabulary to keep pace with them – and, crucially, to ensure that they take shape in accord with democratic values and civil rights. This book develops a line of thought that might help make sense of the underlying concerns uniting some of the more disturbing tendencies of automated media. The hope is that comprehension might still retain some practical purchase on action.

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3 Automated Culture

Our experience of culture, like our memory, is always partial, incomplete, and selective. Perhaps more than any other institution, the Internet has made us conscious of our limitations in the face of human cultural production. Even the simplest of online searches generates more information than we would be able to absorb in a lifetime (as of this writing, a Google search titled "what time is it?" generates more than 18 billion results). We have this same feeling when we stand in the midst of a library, or browse the offerings on a video or music streaming site. Our experience of this world of information confronts us with our own limitations: the fate of the finite. The process of selecting from the flood of information has long been a social one, in the sense that the construction of the cultural realm has been the function of a range of people and institutions, including schools, publishers, editors, DJs, critics, programmers, librarians, and so on. A significant portion of society is devoted to this process of crafting the cultural world because of the crucial role it plays in social reproduction – just as the selective and remembered experiences of the subject help define and reproduce its individual character. For much of recorded history, culture operated in the register of relative scarcity, both in terms of the barriers of entry to cultural production and the cost of access to cultural products, whether these are books, performances, or concerts. The era of the mass media paved the way for a dramatic increase in the volume of centralized cultural production and distribution, but access to the means of production and distribution remained costly. The Internet and the digitization of content threw open the floodgates, making so much information available that organizing it became an extra-human task.

The same is true from the consumer's perspective: choosing from the offerings of a few networks and a handful of radio stations still took place at human scale. Fast-forward to the 2010s and deciding what to watch or listen to becomes a different story: Netflix has close to 15,000 titles, Spotify has around 40 million songs from some 2 million different artists, and Amazon.com offers some 30 million books. Not even the largest Tower Records or the most sprawling bookstore perused by pre-digital consumers comes anything close to the sheer volume of culture available online. However, it has long been true that even the range of available analog content far surpassed the ability of any

individual to make sense of it all. In addition to facilitating access to unprece-dented volumes of cultural content, the Internet makes new forms of cultural curation possible to keep up with the volume of digitized content. The auto-mation of culture does not just refer to cultural production processes but also, crucially, to distribution and consumption: we have offloaded much of the social work of shaping our cultural world onto automated systems, most of which are commercially controlled. This is a huge shift – one that parallels what Taina Bucher (2018) has described as "automated sociality": the way in which media platforms "shape sociality in ways that are specific to the archi-tecture and material substrate of the medium in question" (4). It is not just sociality that is being shaped but also cultural experience more broadly. The significance of this shift is enormous and ongoing: it has to do with the pro-duction and reproduction not just of sociality but also of society.

Much attention has been paid to the role of automated cultural curation in the distribution of news and information, with particular emphasis on the hyper-customization of our cultural and political worlds. The notion of the "filter bubble" (Pariser 2011) and the "Daily Me" (Negroponte 1995; Sunstein 2001b) have been particularly influential in this regard. Although the critique of customized curation emerged early in the new millennium, it has come to the fore in the wake of recent revelations about the pathologies of algorithmic targeting, including the tendency of social media algorithms to prioritize the distribution of polarizing, controversial, false, and extremist content and the use of social media for unaccountable forms of "dark" targeted ads (that are seen only by those to whom they are directed – unlike mass media content). The recurring concern is that the priorities of commercial and political customization are detrimental to the social and political fabric – helping to spread conspiracy theories (such as those who spread falsehoods and misleading information about the dangers of vaccines) and to exploit social fault lines for economic and political gain. This chapter revisits discussions of automated content curation, arguing that practices of customization and individuation need to be considered within the broader context of the offloading of social processes onto automated systems. What is at stake, with respect to the fate of the social, is not simply the range of information available to indi-vidual users but the material practices and infrastructures that promote specification, customization, and individuation.

Thus, this chapter approaches the question of the social from the perspec-tive of democratic self-governance, arguing that, *pace* the recent focus on AI and ethics, what is needed from a political perspective is an engagement with the *civics* of automated decision-making. At the heart of the function of decision-making is the practice of judgment, and the automation of judg-ment poses profound challenges to the civic disposition required for demo-cratic self-governance. The chapter revisits the theme of automated sociality to consider its relationship to the faculty and practice of judgment, drawing on Hannah Arendt's political lectures to argue that judging entails an

enlargement of subjective perspective that reanimates the underlying sociality constitutive of (and repressed by) contemporary hyper-individualism. As subsequent chapters will argue, the role played by language is central to the faculty of judgment, construed in Arendt's terms. The drive to "operationalize" decision-making (in the sense described in Chapter 5) suppresses this crucial connection, contributing to a version of "idiotic" individualism whose symptoms are increasingly familiar in the mainstreaming of conspiracy theory and the rise of so-called "post-truth" politics.

In the face of the social media's highly publicized problems with fake news and political polarization, the ready response has been to propose economic, technical, and educational fixes. Reacting to US concerns about Russian disinformation campaigns, for example, Facebook executive Rob Goldman tweeted: "There are easy ways to fight this … Finland, Sweden and Holland have all taught digital literacy and critical thinking about misinformation to great effect" (Frenkel 2018). A recent report by the Data & Society Research Institute considered a range of possible solutions, including fortified fact-checking and verification services and incentives for de-emphasizing fake content and closing down the accounts of those who circulate it (Caplan, Hanson, and Donovan 2018). The hope embedded in such responses is that the overarching commercial model we have developed for circulating news and information online can be salvaged for the purposes of informed communication and democratic deliberation. Some combination of self-regulation by platform giants, public pressure to reconfigure economic incentives, anti-trust measures, and increased media literacy on the part of users emerges as a strategy for curbing the flood of politically polarized misinformation distributed by automated systems online.

However, the concerns raised by the offloading of information curation onto the automated infrastructures of commercial social media are significant and structural, which suggests the online models we have developed are not salvageable solely through education and self-regulation. Rather, we need to critically examine the broader connections between media infrastructures and social policies that erode resources for mutual recognition, collective deliberation, and judgment. Our focus should go beyond what kind of information people receive online to consider the conditions under which they receive it, and the social and political dispositions fostered by these conditions. Diverse content and perspectives are necessary but not sufficient for democratic deliberation. Meaningful deliberative processes rely equally upon the formation of "discourse ethics," which, "by requiring that perspective-taking be general and reciprocal, builds the moment of empathy into the procedure of coming to a reasoned agreement" (Habermas 1990, 11). The critique of automated online "filter bubbles" (Pariser 2011) can have the misleading effect of diverting attention away from the context and material conditions of news reception and the broader societal conditions within which these are embedded, including the ongoing regulatory assault on "social bonds and obligations, social conscience, and social welfare" (Littler

2018, 14). The shift in the news environment toward the automated customization of content coincides with a political assault on the conditions that enable citizens to take into consideration the needs, perspectives, and values of others, including those whom they do not know and may never meet but who nevertheless form part of their shared communities. We need to think beyond the question of content to the subjective dispositions fostered by automated media, and even the material conditions of reception. A failure to address these issues renders attempts to expose people to a greater diversity of perspectives potentially worse than useless. As Frank Pasquale notes,

> The great problem for advocates of "filter bubble" reforms is that they cannot adequately model whether exposure of one side's adherents to the other side's version of facts, priorities, ideology, or values, will lead to understanding or revulsion, reconsideration or recalcitrance.
>
> (2017, 16)

Anyone who has spent some time following interactions on social media knows that exposure to countervailing views and evidence rarely leads to careful reconsideration and thoughtful deliberation rather than a further hardening of people's positions.

"Everyone's Got Their Goons"

Many of the proposed solutions to the pathologies of automated commercial media platforms assume a shared understanding of the problem and the civic will to solve it. However, it is not clear that such an understanding and the underlying civic will exist. Indeed, there are political movements, candidates, and elected representatives whose strategies depend directly on exacerbating rather than ameliorating the human and automated circulation of disinformation and the breakdown of conditions for deliberation. There is also a form of pleasure to be derived in some quarters from the agonized response of the "reality-based" community to the strategic circulation of disinformation. Consider, for example, the conservative businessman interviewed by the *New York Times* who views right-wing conspiracy theories as a form of entertainment: "I just like the satisfaction … It's like a hockey game. Everyone's got their goons. Their goons are pushing our guys around, and it's great to see our goons push back" (Tavernise 2016). The subject position here is one that seeks out fake news as a form of politicized entertainment because it confirms prejudices and preconceptions.

There is another subject position that is worth taking into consideration: that which questions the efficacy of fact-checking itself. Consider the example of Florine Goldfarb, one of the unwitting Americans who used their social media accounts to promote events orchestrated by Russian Internet trolls during the 2016 presidential campaign (Shane 2018). When confronted with the fact that she had posted information generated by a

Russian propaganda organization on her pro-Trump Facebook page, her response was dismissive: "I don't go with Russians … I don't believe that. That's bulls—" (Logan 2018). Such responses highlight the impasse of media education: it runs the danger of simply pushing the problem of fact-checking back a level. The philosopher Slavoj Žižek (2000) has described this vertiginous infinite recess of credibility as the retreat of "symbolic efficiency," suggesting that in the contemporary information environment "what is increasingly undermined is precisely the symbolic trust which persists against all skeptical data" (332).

The Role of a "Civic Disposition"

The issues raised by political polarization reach beyond the circulation of content to the ways in which information is received and the concrete practices that materialize reception. It has become exceedingly clear in recent years that mere exposure to a wide range of perspectives does little to promote openness or curiosity on the part of those who view debate simply as an opportunity to score a win for their ideological position and countervailing facts as something to be suppressed, misconstrued, or simply denied. Much of what passes for discussion and debate online provides a ready refutation of the notion that access to a greater range of information and perspectives creates a better-informed citizenry. However, it would be unfair to blame the Internet for this – much the same is true of 24-hour cable news, which once promised to dramatically enhance public awareness but which has succeeded primarily in recasting public debate as a latter-day Punch and Judy show featuring increasingly extreme characters.

Against the background of recent concerns about the impact of digital media on the public sphere, this chapter argues for a reconsideration of the critique of customized media that moves beyond discussions of diversity of content. Specifically, it argues that while the notion of a "filter bubble" (Pariser 2011) has captured much of the research attention in the field, additional emphasis needs to be placed on the conditions available for the formation of a "civic disposition" in the platform economy (Pratte 1988) – or what Arendt (1982), drawing on Kant's *Critique of Judgment*, describes as the "enlarged mentality" of putting "oneself in thought in the place" of others (71). The central concern from the perspective of fostering democratic deliberation is not (only) whether people are exposed to a narrower range of news and information online thanks to automated hyper-customization (a claim that seems increasingly implausible in the information-saturated online media environment) but whether social media undermine the civic purchase of diverse information streams. In other words, it may be that, in a context of media surfeit, people find themselves both exposed to a broader range of information and less inclined to take into consideration the larger community of which they are part and the perspectives of those unknown others who comprise it.

The point here is not simply that confirmation bias (Pariser 2011) might contribute to how people navigate a flood of information, but that a combination of platform logics and communicative practices with broader social policies undermines the background conditions for democratic deliberation. The problem of the "filter bubble" may really be one of the declining efficacy of the conditions that make deliberation meaningful. If, as Benedict Anderson (2006) has argued, the rise of print capitalism resulted in media technologies and artifacts that helped people form a sense of imagined community at the national level, the shift toward platform media in the era of "statist neo-liberalism" (Littler 2018) works to undo this achievement. Growing resistance to countervailing facts and opinions may not be due to echo chambering but rather to the degradation of people's ability to see themselves as part of an imagined community in which the concerns and interests of others, both individually and collectively, matter to their own thriving and thus to their deliberative decision-making processes. This chapter discerns in the pioneering work on automated curation the resources for approaching the overarching question of the formation of a civic disposition and the conditions that threaten it.

The two most influential writers positing a connection between online news and political fragmentation, Eli Pariser (2011) and Cass Sunstein (2001a), both develop arguments that have a dual focus: the range of content to which users are exposed and the resulting shift in civic dispositions. However, it is the content side of the argument that gets the most attention in recent research, perhaps because of the keywords with which their work is associated: "The Daily Me" (Sunstein, borrowing from Negroponte) and the "Filter Bubble" (Pariser's term) both refer to the automated tailoring of content to particular users. As Sunstein (2001a) puts it in his first book on the topic,

> there are serious dangers in a system in which individuals bypass general interest intermediaries [mass circulation newspapers and electronic mass media] and restrict themselves to opinions and topics of their own choosing … A situation of this kind is likely to produce far worse than mere fragmentation.
>
> (16)

Pariser uses Sunstein's book as a jumping-off point for his own exploration of online filtering, coming to much the same conclusion: "Together, these engines create a unique universe of information for each of us – what I've come to call a filter bubble – which fundamentally alters the way we encounter ideas and information" (Pariser 2011, 12). He notes the inevitability of filtering in an increasingly saturated information environment while also critiquing its tendency toward individualization: "Left to their own devices, personalization filters serve up a kind of invisible autopropaganda, indoctrinating us with our own ideas" (13). The concerns here

have to do with a shifting information environment in which the broadening of available content coincides with increasing nichification.

Finding Filter Bubbles

One result of this argument, which has regained attention in the wake of recent events, has been a spate of research seeking to empirically verify the existence of "filter bubbles" – customized information environments that reflect a narrowing of perspectives despite the proliferation of online content. However, the empirical evidence in this regard remains contested. Fletcher and Nielsen draw on the *Reuters Institute Digital News Report* to argue that "Contrary to conventional wisdom, our analysis shows that social media use is clearly associated with incidental exposure to additional sources of news that people otherwise wouldn't use – and with more politically diverse news diets" (Fletcher and Nielsen 2017). Similarly, Flaxman et al. (2016) found that the use of social media and search engines is "associated with an increase in an individual's exposure to material from his or her less preferred side of the political spectrum" (303). Relying on a different threshold comparison, however, Nikolov et al. (2015) found that

> the diversity of targets reached from social media is significantly lower than those reached from search engine traffic, for all traffic as well as news targets … This empirical evidence suggests that social media expose the community to a narrower range of information sources, compared to a baseline of information seeking activities.
>
> (8)

Alternatively, a review essay by Borgesius et al. (2016) concludes that, "at present, there is no empirical evidence that warrants any strong worries about filter bubbles." The field seems to be moving in this direction, treating concerns about filter bubbles as a form of media panic unsupported by the evidence (see, for example, Bruns 2019).

In the era of high volume social media sharing, it seems plausible that those who spend more time online are more likely to encounter a diverse range of information and perspectives – even if these are simply shared in the form of critique or even indignation. *Wired* magazine reported, for example, that those who most strenuously critiqued conspiracy theories about school shootings in the United States contributed to their prominence on social networking platforms, since "people outraged by the conspiracy helped to promote it – in some cases far more than the promoters of the story" (McKew 2018). Indeed, one of the apparent effects of the automated distribution of content is the mainstreaming of what were once considered fringe, extremist views. The communicative economy of outrage and sensationalism that characterizes so much of the online information world helps circulate a broad range of perspectives – if only to allow people to identify

and call out those with whom they disagree. Such activity is profitable for platforms, insofar as cycles of outrage and indignant argumentation keep uses engaged – but it is not conducive to democratic deliberation, and it undermines the forms of mutual recognition and attentiveness that are integral to the formation of a civic disposition. By emphasizing extremist content, these modes of engagement exacerbate the tendency to view political opponents as irredeemably misguided and dangerous.

The all but exclusive emphasis on media content that characterizes the recent reception of the filter-bubble argument gives rise to the assumption that exposure to a broader range of perspectives might ameliorate the problem of fragmentation and polarization. However, if the evidence regarding the consequences of personalized news is in dispute, the evidence of increasing polarization is less controversial. A large-scale survey by the Pew Research Center (2014) found that, by a number of measures, the level of political polarization in the United States has increased dramatically in the previous two decades. According to their findings, the number of Americans who expressed consistently conservative or consistently liberal views had doubled – that is, people seemed to be more "dug into" a partisan political perspective. At the same time, Pew researchers reported that

> Partisan animosity has increased substantially … In each party, the share with a highly negative view of the opposing party has more than doubled since 1994. Most of these intense partisans believe the opposing party's policies "are so misguided that they threaten the nation's well-being."
>
> (Pew Research Center 2014)

Although levels of polarization vary internationally, the Reuters institute discovered growing perceptions of media bias and increasing political polarization in the countries it surveyed: "People cluster to media organisations that fit their belief, and dismiss other outlets. The Internet, once thought to open the world up to all the information possible and bring people together, has instead drawn people into their own corners" (Newman et al. 2017, 30). A variety of other factors come into play in discussions of political polarization, including media deregulation and increasing levels of economic inequality; however, the media remain an important realm in which these tensions are played out (Newman et al. 2017).

Beyond Content

Further consideration of the filter bubble argument provides resources for considering the ways in which increased exposure to diverse content might coincide with political polarization. Attempts to verify the existence of filter bubbles shift attention away from ancillary concerns raised by both Pariser and Sunstein about shifting civic dispositions because the latter are

viewed simply as a consequence of the former. Both authors supplement their concerns about customization with criticism of the impact that media have on the disposition of users. For Sunstein (2001a), the operative distinction is between what he describes as "consumer sovereignty" and "political sovereignty" (86). The former prioritizes individual tastes and defines freedom as their expression within the constraints set by the price system (and available resources). From the perspective of consumer sovereignty, reading the news is indistinguishable from shopping for clothes or cars. Political sovereignty, by contrast, "does not take individual tastes as fixed or given. It prizes democratic self-government, understood as a requirement of, 'government by discussion,' accompanied by reason giving in the public domain" (Sunstein 2001a, 45). In other words, political sovereignty requires the practices of recognition that make it possible to form preferences in discussion with others, taking into consideration their perspectives and claims. It relies on the recognition that the conditions for the formation of individual tastes rely on underlying forms of sociality and community that enable a perceived commonality of interests.

Similarly, Pariser (2011) argues that filter bubbles collapse citizenship into consumerist individualism: "The filter bubble … creates the impression that our narrow self-interest is all that exists. And while this is great for getting people to shop online, it's not great for getting people to make better decisions together" (90). Beyond his concern with a potential narrowing of the range of content, Pariser is targeting the ways in which automated curation helps erode the social foundation upon which meaningful deliberation relies: "Personalization has given us something very different: a public sphere sorted and manipulated by algorithms, fragmented by design, and hostile to dialogue" (91). At the same time, Pariser's concern over the fate of the public and the social suggests the possibility that recalibrating algorithms for serendipity and breadth may not, on its own, address the pathologies of fragmentation. As he puts it, the problem must also be countered by "a more humanistic and nuanced sense of identity, and an active promotion of public issues and cultivation of citizenship" (Pariser 2011, 127).

Tellingly, in this regard, both Pariser and Sunstein invoke the importance of what we might describe as a "civic disposition" that recognizes the claims and concerns of others as playing an important role in one's own political calculus. Such a disposition is difficult to achieve without the community resources that allow for the imagined possibility of a shared, public interest. As Pratte (1988) puts it,

> Civic virtue is not a matter of mere behavior; it is a matter of forming a civic disposition, a willingness to act in behalf of the public good while being attentive to and considerate of the feelings, needs, and attitudes of others.
>
> (308)

For the philosopher Jurgen Habermas, such a disposition is formed in concrete social practice and through conscious forms of social cultivation. As McCarthy puts it, "practical discourse [features] … moral agents trying to put themselves in each other's shoes … And this must be done publicly; arguments played out in the individual consciousness or in the theoretician's mind are no substitute for real discourse" (in the introduction to: Habermas 1990, 12). Degryse (2011) makes a similar point, noting the connection drawn by the philosopher Hannah Arendt between the Kantian *sensus communis* (the shared sensibility that serves as a precondition for judgment) and language: "She makes the mental process of judging dependent on actual speech and communication" (356). Viewed as a concrete social practice, the formation of such a disposition relies upon materialized practices that foster turn-taking, the ability to place oneself in the position of others, and an underlying sense of community.

Pariser and Sunstein closely associate customization of content with the fragmentation of a shared media sphere and thus with the erosion of conditions for the formation of a civic disposition, which is displaced by abstract conceptions of primary individualism combined with concrete practices of consumerism – what Arendt would describe as a "*sensus privatus.*" Their arguments suggest that the core problem is not just a question of information but also one of the *disposition* toward that information, in which case we might consider what factors beyond content are implicated in the formation – or erosion – of civic dispositions online (and off). It may be that automated customization and the concrete technologies and practices with which it is associated, rather than just the alleged narrowing of content, plays the more decisive role – accompanied as these developments are with broader shifts in the social, cultural, and political environment.

It would be nice to imagine that diverse ideas and perspectives, on their own, could bring into being an openness to considering competing claims and putting one's own preconceptions to the test, but history has repeatedly proven otherwise. The formation of a civic disposition is an historical achievement that requires the development of societal and institutional resources and practices. It is an achievement that can be undone if the reservoir of public commitment and social practices that dispose people toward good faith engagement and public deliberation are reconfigured. The philosopher J.M. Bernstein highlights the underlying issues in his discussion of Jurgen Habermas's (1990) version of the role of communicative reason in the public sphere: "The ground for orienting ourselves toward establishing validity claims through intersubjective recognition is intersubjective recognition" (Bernstein 2014, 180). Much as we might like them to do so, arguments do not command recognition on their own. The deeper question at work in critiques of media fragmentation, then, is the extent to which the rise of customized commercial platforms does not just shape the range of available content but also reconfigures the underlying conditions for meaningful public deliberation. One crucial task for

addressing contemporary concerns about the relationship of platform media to democracy is to identify some starting points for moving the discussion beyond an overly narrow focus on content customization. The remainder of this chapter considers, in turn, the shift from mass to automated media, the dismantling of imagined community and sociality associated with statist neoliberalism, and the consequences of these developments for political judgment.

From Mass to Automated Media

The 20th-century era of mass circulation media represents, for Sunstein (2001a), a significant if relatively brief historical interlude that played an important role in democratic deliberation at the national level. The mainstream mass media – which he describes as "general interest intermediaries" (3) – provide a mediated sociality that serves as the social glue enabling shared deliberation. As he puts it, "People who rely on such intermediaries have a range of chance encounters, involving shared experience with diverse others and exposure to material that they did not specifically choose" (11). The emphasis in this formulation, as in much of Sunstein's writing on the topic is, unsurprisingly, on content: a common set of stories contributes to the formation of shared world views that provide common ground for deliberation. Sunstein compares these media to public spaces in which people encounter perspectives and viewpoints that differ from their own but that are nevertheless circumscribed by a shared set of reference points (2001a, 12). The advantage of mass media for democratic governance is that they can extend this sense of a shared informational space beyond the limits of physical space: "intermediaries of this sort have large advantages over streets and parks precisely because they tend to be national, even international. Typically they expose people to questions and problems in other areas, even other countries" (2001a, 6). Here Sunstein moves beyond an exclusive focus on content: he is articulating the role that the mass media play in forming what Benedict Anderson has described as an "imagined community" (2006). Anderson draws on the example of one of the first mass production technologies, the commercial printing press, to explore the relationship between the rise of the concept of the nation state and of the mass audience for newspapers and novels. The novel, he argues, ushers in the notion of, "a sociological organism moving calendrically through homogeneous, empty time" (Sunstein 2001a, 26) – a notion that parallels "the idea of the nation" as a container that holds together people who will never know each other but who nonetheless are conceptually assembled into a shared sense of community. As he puts it,

> An American will never meet, or even know the names of more than a handful of his 240,000,000-odd fellow Americans [Anderson was

writing 80 million people ago]. He has no idea of what they are up to at any one time. But he has complete confidence in their steady, anonymous, simultaneous activity.

(26)

He describes the daily newspaper – Sunstein's general interest intermediary – as the basis of a rhythmic ritual of reading that reinforces a sense of community:

> The significance of this mass ceremony – Hegel observed that newspapers serve modern man as a substitute for morning prayers – is paradoxical. It is performed in silent privacy, in the lair of the skull. Yet each communicant is well aware that the ceremony he performs is being replicated simultaneously by thousands (or millions) of others of whose existence he is confident, yet of whose identity he has not the slightest notion.
>
> (2001a, 35)

This awareness is a true achievement to the extent that it calls into being the sense of a shared, common existence with unknown, remote but imagined others. Dwelling on the power of this achievement, we might consider the practical and material components that underwrite a sense of simultaneity as community. The news comes according to a rhythm – morning edition, late edition and evening edition – that synchronizes reading patterns across space. Readers know the stories they are reading are simultaneously being consumed by unknown others in their regional or national sphere. The papers themselves circulate as discrete sharable items whether in the home or on the commuter train, where a discarded paper might be retrieved and re-read by many, marking an informational bond between readers. Mass media homogenize and unify the informational community – a process that has both its benefits and its pathologies (the latter of which provides the impetus for undermining the former). Like mass transport, mass media assemble people into groups and provide them with a collective sense of movement through time.

Anderson's formulation is suggestive because it highlights the role that media infrastructures, artifacts, and practices play in providing the imagined community without which the formation of a civic disposition in impossible. As Bernstein (2014) suggests, recognizing the claims of unknown others requires that some sense of a shared community interest must already be in place. Anderson provides us with ways of thinking about the role played by media practices and technologies in building this sense of community (which is not to say that the media are the sole contributor but that they can play an important role). The mass reproduction enabled by the printing press standardized a national language and provided those who spoke it with shared informational resources. Mass circulation newspapers helped to build a shared sense of mediated experiences at the regional and eventually the national level. People watched the same shows at the same times (more or less); they read stories about the same issues, and the mass market gave rise to conventions of objectivity that set the

boundaries for what counted as mainstream perspectives. The subsequent critique of the "mainstream" media was enabled by the fact that there *was* a palpable mainstream, largely built around the consensus of political and media elites and those who depended on them for information and access (see, for example, McChesney 2008 or Herman and Chomsky 2010). The limitations of mass media meant that there was an "outside" to the media environment – people were not immersed in the endless flow of customized information and entertainment that characterizes always-on media. There is no need to romanticize the era of the general interest intermediary (shaped from its inception by commercial pressures and constrained by power and convention to reproduce dominant ideologies and exclude voices that might challenge them) to trace the role it might play in the formation of an imagined community that could gesture toward the possibility of a shared public interest – at least in theory. In practice, this community excluded many of those in its midst while at the same time providing resources for the struggle for inclusion. To combat exclusion by dispensing altogether with a concept of a shared set of interests in common would be to undermine the basis for such a struggle.

The rise of the commercial model for information provision online offers some telling contrasts to the era of the general interest intermediary – beyond the differences in content identified by Sunstein and Pariser. The notion of homogenous time gives way to mass customization, and the rhythm of media consumption becomes disaggregated and reconfigured. The evening newscast is replaced, for many, by the automated flow of customized information. One doesn't discard *The Daily Me* on the seat of the commuter train – not just because it comes on an expensive device but also because it is addressed to an individual user at a particular point in time. We dig ourselves into our own worlds not simply by drawing on customized content but by reconfiguring our spatial and temporal relationships to information, to the world around us, and to each other. The TV room in the dorm or family room gives way to viewers watching separate Netflix shows in adjoining rooms on their personal devices. Local newspapers shrink and vanish, leaving a vacuum to be filled by local Facebook groups created by whoever can get the most attention, including the purveyors of sensational and misleading content. The rhythm of reading and viewing is accelerated while the time to absorb and contemplate is displaced by the relentless flow of updates and information tidbits. The space "outside" of media consumption shrinks as people take their devices into the public parks and streets, largely oblivious of the strangers around them, focused on their personalized windows into the world unfolding around them. Of course, there are exceptions and alternatives, but the tendency is clear, and the implications for our sense of imagined community deserve a central place in any approach to understanding the relationship between digital media and political fragmentation.

The reluctance of influential platforms such as Facebook and Twitter to view themselves as publishers, and thus responsible for the content they circulate, furthers the shift away from a notion of the public – and the goal of

serving its "interests," however contentious the attempt to define these may be – toward that of marketing to disaggregated consumers. The imperatives of the automated information economy are shaped by data-driven commercial models that rely primarily on "stickiness" (the time spent on a site) and engagement (user content production and information sharing) to maximize exposure to ads and data collection about users (Lewis 2018). Customization at this level (no media outlet in history has ever reached the1.6 billion unique monthly users claimed by Facebook) *requires* automation. What might once have been considered editorial decisions are offloaded onto automated systems or crowd-sourced. The result is that even those who administer the platforms can be surprised by the outcomes of these decision-making processes. You-Tube, for example, has repeatedly had to remove top trending videos featuring extremist conspiracy theories promoted by their algorithms (Lewis 2018).

One of the leading contemporary critics of the social effects of the device-based platform economy is lapsed cyber-celebrant Sherry Turkle. For Turkle, social media are fundamentally anti-social technologies inso-far as they offload communicative relations onto digital (and commercial) networks. Her book *Alone Together* (2017) laments a perceived loss of sociality in an era of hyper-connectivity: the rise in playground accidents that coincides with parents and nannies focusing on phones rather than children; the college suitemates texting one another from room to room rather than talking – the diminution of the "raw, human part" of being with one another (De Lange 2013).[1] As Turkle puts it,

> today our machine dream is to be never alone but always in control. This can't happen when one is face-to-face with a person. But it can be accomplished with a robot, or by slipping through the portals of a digital life.
>
> (2017, 157)

It could also be accomplished through the platformization of the physical world anticipated by the proselytizers of "augmented reality": if all our interactions become mediated by always-on camera headsets, we might imagine the ways in which these could shape reality in accordance with the imperatives of convenience: screening, for example, sights we did not want to see, information which we seek to avoid, and so on.[2]

Neoliberal Sociality

Media practices do not exist in a vacuum and the tendencies described by Turkle, Sunstein, and Pariser parallel broader claims about the resources for sociality under conditions of what Wendy Brown has described as "statist neoliberalism" (in Littler 2018). The triumph of "consumer sover-eignty" combined with technologies and practices that foster increasingly individualistic forms of media consumption and solipsistic social

interaction described by Turkle align themselves with the regulatory assault on notions of a public interest and policies that support social security, shared interests, and collective goods. Brown argues that the political climate of the Trump era promotes a regulatory approach that

> literally takes apart social bonds and social welfare – not simply by promoting a libertarian notion of freedom and dismantling the welfare state, but also by reducing legitimate political claims only to those advanced by and for families and individuals, not social groups generated by social powers.
>
> (quoted in Littler 2018, 14)

The list of policy changes and proposals that fit this description continues to grow: the attempts in the United States to undermine the Affordable Care Act (for health care), to dismantle environmental regulation, to de-fund public service media and publicly funded research, to cut low-cost health care for poor children and cross subsidies for broadband access, to name just a few.

What the programs and policies under attack have in common is that they reflect a commitment to forms of mutual recognition and the sense of a shared, public interest. Such a commitment reflects and reproduces a crucial component of democratic culture that is undermined by Trump administration policies, according to Brown (2006): "The saturation of the state, political culture, and the social with market rationality effectively strips commitments to political democracy from governance concerns and political culture" (695). Media theorist Cayley Sorochan (2018), in her related discussion of the fate of participation in the neoliberal era, observes that

> It is not simply that the political sphere has minimized its purview or become corrupted by capitalist interests, it is that the possibility of understanding the political as a distinct dimension of human life with its own logic and set of values is disappearing or made unintelligible by the ubiquity of economistic thinking.
>
> (36)

At issue in such accounts is the diminished or disappearing space for forms of political interaction that are irreducible to the economic. Even in the market realm, the focus on individual market actors privileges costlier short-term solutions over economically optimal solutions (as in the case, for example, of health care: Americans pay much more per capita with worse public health outcomes than countries with single payer systems (Feldsher 2018)). Even though couched in market terms, the opposition to socialized systems with beneficial outcomes is, in many cases, ideological (it is not hard to come up with a range of examples in this regard: laws against municipal broadband, antipathy toward libraries,[3] mass transit, the ongoing assault on public education, and so on).

The wide-ranging reconfiguration of the societal landscape associated with such developments suppresses the conditions for the underlying forms of trust and recognition that enable the functioning of social and political life. The subject position that celebrates tax cuts for the wealthy, paid for, in part, by dismantling health care for the needy, refuses any conception of a common interest that foregrounds societal interdependence. Similarly, an exclusive emphasis on individual self-interest suppresses and misrecognizes the foundational social bonds that make the market society it relies on able to function in the first place. The threat of this form of extreme misrecognition is that we become less conscious of the underlying forms of trust that make possible even the most basic of activities in contemporary society, from trusting the public schools with the security of our children, to crossing the street when the light turns red (it is a symptom of contemporary social pathologies that both of these realms – schools and public roads – have become highly publicized vectors of attack and vulnerability). When we think about how much we have to trust the care and good will of others on a daily basis, it can seem almost miraculous that society continues to function at all. We only tend to notice how much we rely on these routine forms of trust and the social infrastructures they support when they break down or are violated: when, for example, someone in Australia engages in the diabolical act of hiding needles in strawberries as they lie exposed to the public on super-market shelves (Cohen and Lewis 2018). In myriad, ongoing ways, we rely on forms of trust and recognition that are all too easily ignored, overlooked, and disavowed in favor of an abstract notion of individuality that would be impossible to sustain without underlying forms of misrecognized and sup-pressed social interdependence. The assault on public institutions ranging from public education to public parks and libraries to public health care provides evidence of the social amnesia upon which neoliberal governance thrives. As the philosopher J.M. Bernstein puts it,

> The American version of these practices has, from the earliest days of the republic, made individuality autochthonous while suppressing to the point of disappearance the manifold ways that individuality is beholden to a complex and uniquely modern form of life.
>
> (2010)

Against this background, it comes as no surprise that the frustration of the current political moment has to do with people's inability to reach across political and ideological divides to agree upon underlying facts, evidence, and reality. The shift toward automated, customized media works in both form and content to reinforce a conception of consumerist individualism that disavows the background practices, institutions, and social relations that serve as its own conditions of possibility. Thus, the questions we should be asking of social media and the platform economy have to do not just with the diversity of content they provide but also with the ways in which they structure and

reinforce this version of consumer solipsism. Such influences are not limited to the messages we receive but extend to the ways in which we encounter them.

If the underlying resources for meaningful deliberation – the ground that makes it possible for people to hear the concerns and arguments of others – are eroded, it is not clear that technical or educational fixes, as important as they might be, are a sufficient remedy. Instead, it becomes important to reconfigure the practices, platforms, and policies that reinforce the view that news and information ought to be individualized, custom-tailored commodities – that there is no distinction between citizenship and consumerism. The point here is not simply that customization shapes content but that it implies news is a matter of personal preference or ideological allegiance and not a resource for communal action. The stakes are high because of the role deliberation plays in democratic self-governance – that is, in providing an alternative to the role of violence in resolving disagreements. As Simone Chambers put it in her work on deliberative democracy, political deliberation is predicated, in part, on "the intuition that talking is better than fighting" (Chambers 1996, 2). If the civic dispositions available for talking dissipate, we run the danger of finding ourselves in a post-deliberative, post-diplomatic realm in which the play of force and violence is unleashed – perhaps we are already there.

The Glut Chamber

The insight resulting from such arguments is that diversity of media content and perspectives is an outmoded proxy for meaningful deliberation. Neither Sunstein (2018, 2007, 2001a) nor Pariser (2011) celebrates diversity simply for diversity's sake: they both see the breadth of media exposure as a necessary precondition for functional public deliberation. That is, even if those who lament the rise of online echo chambers are empirically wrong about the breadth of perspectives to which people are exposed, this does not mean we no longer have to worry about the state of contemporary political deliberation. It seems increasingly possible that the most important change is not in the breadth of content but in its efficacy. This is the paradox of the contemporary information environment: that, under certain circumstances, a breathtaking expansion of the information environment might exacerbate (rather than overcome) political polarization. Such an observation is perhaps less surprising than it might at first seem: when there are myriad conflicting accounts and perspectives, people may experience greater latitude in choosing among them. When the dominant media infrastructures and consumption practices emphasize the individualization and customization of news and information, these come to be seen not as a resource for public life but as matters of personal taste and preference reinforcing a *sensus privatus.* In a world of proliferating media outlets, wherein even the most extreme perspectives can readily find themselves reinforced by a range of media sources and resources (as well

as by a corps of like-minded supporters), it is easier to feel that one has not only the right but the obligation to choose one's own facts.

But information "glut," on its own, is not enough to explain this vertiginous dismantling of symbolic efficiency. Isn't the whole point of evidence and reasoned argument that it can cut through the clutter of falsehood, superstition, and wrong opinion? The reality of public debate on a national scale is that it draws heavily on media representations and thus relies on some fundamental level of trust in the systems of expertise, accountability, and responsibility meant to serve as guarantors of these representations. Functional debate also depends upon what might be described as good faith engagement in processes of reasoned, consistent argumentation and the ability to step outside of one's own perspective to consider that of others – that is, some degree of generalizability. The commercial platform model poses profound challenges to both of these underlying preconditions, which suggests the importance of a fundamental rethinking and reconfiguration of this model. Admittedly, these challenges are not unique to social media, which in many ways extend the logics of hyper-commercialization and nichification that characterized the development of the mass media in the late 20th century.

The truth of the "democratizing" promise of social media, then, is that it reconfigures the citizen as both consumer (and thus as an individualized target) and brand (tasked with self-marketing and self-broadcasting) (Hearn 2008). For individuals as "brands," the goal is not to learn from others but to sell one's attitudes and beliefs as a product: to carve out an identity niche that remains identifiable over time. Brands do not deliberate – they impose a set of recognizable associations. We learned this from the talking heads on cable news, who typify the public brand that is now generalized across the landscape of social media "influencers" and self-branders. These brands are leveraged by automated systems that prioritize the circulation and exacerbation of controversy and conflict to foster engagement and enhance the "stickiness" of a platform. Offloading our interactions onto bots allows us to further suppress the recognition of our interdependence – our reliance on others.

The new challenge for democratic deliberation, then, becomes not that of providing evidence and countervailing narratives and viewpoints but of securing recognition for the underlying forms of interdependence that make it possible to take on the perspective and position of others – and to invite them to do the same for us. In other words, if we can agree that focusing on content alone will not address the pathologies of the current information environment for democratic societies, we will need to turn our attention to the ways in which media infrastructures, institutions, and practices promote a misrecognition of the forms of interdependence that underwrites our existence in society. In the automated, mass customized media environment, it may be that the real challenge to democratic deliberation is not the narrowing of content and perspectives available on social media platforms (especially if

there is little evidence of this "narrowing") but the proliferation of information accompanied by the erosion of the resources for adjudicating them.

If, in a hypothetical filter bubble, people are deafened to the views of others by the constant reinforcement of their preconceptions and prejudices, in a context of "infoglut" (Andrejevic 2013), the cacophony is equally deafening. In an environment of media surfeit, where the resources for adjudicating between rival accounts is systematically undermined, one is cast adrift on a sea of narratives and counter-narratives, equipped only with the pole star of pre-existing preconceptions and prejudices. Moreover, if recognizing and evaluating the claims of others depends in turn on underlying forms of inter-subjective recognition and imagined community that are eroded by the rise of automated sociality (and the assault on practices and institutions that provide a sense of shared political and social commitment), we cannot count on whatever passes for reasoned deliberation to retain purchase on its own. Addressing the pathologies of the contemporary information environment means imagining alternatives to offloading social processes onto commercial automated networks that undermine the conditions for actual deliberation (listening, perspective taking, and recognition of mutuality and shared interdependence). Failing to do so would mean conceding that talking no longer provides a viable alternative to fighting and that information is little more than ammunition.

"Only An AI Can Save Us Now"

The challenges posed by the proliferation of competing narratives and perspectives in the absence of a civic disposition adequate to adjudicate them invoke a familiar solution: automation. The ground for this solution was prepared by the rise of automated information curation systems: if we offload the social processes that shape our information environment onto automated platforms, and the predictable result is a version of social de-skilling, the next step is to automate the decision-making process itself: to develop systems that operate as a collective "executive" faculty. This is the AI solution to the age-old "cognitive bandwidth" issue of democratic society: how can self-governance function in the widespread absence of the necessary time and expertise available to the citizenry for addressing complex and sometimes highly technical issues? Representative democracy offers one strategy, by creating a political class tasked with acquiring the expertise to manage the issues (at least in theory). Such a solution runs afoul of the tendency toward personalization, insofar as it also requires a sense of shared community and enough of a civic disposition to be willing to share a political representative with hundreds of thousands or millions of others. The imperative of customization and individuation, by contrast, underwrites César Hidalgo's vision for the creation of personal political bots to serve as our "representatives" in the same way that recommendation algorithms select possible purchases for us. If deliberative processes become

dysfunctional, this is just one more opportunity for automated systems to take the next step in social automation: automating the political.

The forms of political fragmentation and polarization that haunt the rise of social media and the commercial customization of content provide further rationales for the automation of judgment. If the demise of symbolic efficiency (which helps explain the lack of purchase of evidence-based argumentation) and the privileging of consumer sovereignty subvert the conditions for democratic deliberation, automation can allegedly save the day. The technocratic solution comes as an admission that the current information environment is too much for us – and that contemporary conditions render it unlikely that we will be able to resuscitate the civic resources necessary to engage in collective self-governance. Perhaps the most compelling promise of automation, such as it is, is that it can overcome the *partiality* of subjects – their limited ability to absorb information and their necessarily situated positions that come with their own biases and preconceptions.

If, in other words, "total information," or the closest approximation thereof, is asserted as the normative basis of judgment and decision-making, humans come across as eminently less qualified than powerful information-processing machines. Indeed, one of the recurring themes of automated decision-making is precisely that society will be improved by the displacement of humans by machines in key decision-making areas. At issue in such claims is the faculty of judgment and the underlying assumption that, when it comes to judging, more information is better and total information is best. Automated information collection and processing promises to progress far beyond the capacity of human sense-making, leading some analysts to argue that machines will become (or already are) more effective decision-makers than their human creators. As Nigel Rayner, an analyst for the technology consulting company Gartner put it, "We humans are very bad at making decisions … Everywhere I look, predictive modeling, machine-based algorithmic systems and computer-based simulation outperform humans" (Thibodeau 2011). Much depends upon where he is looking, which seems to be business strategy and hiring decisions, which, he claims, can reveal the debilitating biases and limitation of human managers: "When we look forward we are too influenced by what's happened in the past and our own perception of what we want to happen, rather than taking a rational view" (Thibodeau 2011). As we saw in Chapter 1, similar arguments are made on behalf of automated weapons, which allegedly remove human error, emotion, and prejudice from the battlefield. Related claims have been made about judicial decisions (Kinson 2018), hiring (and firing) decisions (DeNisco 2018), and more. The rational view, on this account, purports to be a view from nowhere – one that is not shaped by subjective factors that might sway the objective analysis of the data.

This view of rational decision-making is a familiar one that we encounter when, for example, we find ourselves making a list of the pros and cons of a

particular decision, as if lurking beneath the apparent indeterminacy is a clear calculus whereby the decision has already been made. Such decisions fall within the ambit of what the philosopher Immanuel Kant called "determinate judgments" – that is, decisions that are, in a sense, already made because they entail simply applying an existing rule to a situation. Pre-programmed, syllogistic decision-making lends itself to such judgments – and tends to assimilate all decision-making to this model. However, Kant posited another type of judgment, which fits more closely with the substantive use of the term – that is, what we really mean when we talk about judgment. No actual judgment is necessary if the correct decision can be arrived at simply through an existing rational or logical calculation. Judgment proper entails the task of addressing an indeterminate situation – one that has not already been resolved logically in advance. A logical syllogism, for example, does not require *judgment* in the substantive sense of the term, merely the application of logic and pre-existing rules. Kant described "reflexive judgments" as those that cannot be resolved by applying an existing set of general rules to a particular case.

Reflexive judgments nonetheless require decision-makers to discern in the particular case a general principle, such that the decision can be recognized not simply as an arbitrary one but as one with recognized validity. As Hannah Arendt puts it in her posthumously published lectures on Kant's political philosophy, "The chief difficulty in judgment is that it is 'the faculty of thinking the particular'; but to think means to generalize, hence it is the faculty of mysteriously combining the particular and the general" (1982, 76). Kant models such judgments on aesthetics, since judgments of beauty are archetypically non-syllogistic while also assuming general assent. To say that I like a particular painting is a statement of taste, whereas the assertion that it is beautiful implies a more generalizable claim: that it ought to be recognized as such not simply by me but by others. This claim stands despite the fact that there is not a pre-existing set of rules that can tell us whether a painting is beautiful or not – that is, reflexive judgments mark the seeming paradox that a decision irreducible in advance to existing general rules can nonetheless claim general validity. In a sense, such judgments mark a moment of discovery, and yet one that remains at the particular level. Linda Zerilli (2005), in her work on Arendt, argues that the non-syllogistic character of reflexive judgments renders them a characteristic locus of human freedom: "A freedom-centered practice of judgment, then, cannot be modeled on the rule-following that characterizes what Kant called a determinate judgment" (163).

Such a position comes into play once it is conceded that the perspective of total information is an unreachable one – even for automated systems. Once totality falls by the wayside as an ideal, the notion that more information is necessarily better loses some of its purchase: there may always be a crucial missing piece. Automated systems can encode the generalizations and priorities that humans claim to act upon in theory while often falling short in actuality. They can also discover significant correlations that have gone unnoticed by humans because of preconceived notions of

relevance. These are not insignificant achievements, but it is not clear they reach the threshold of judgment in the reflexive sense – the ability to extract a general principle from a particular instance. This is perhaps why César Hidalgo's vision of "automated" politicians – software agents that make political decisions on behalf of citizens – rings false: it is not clear that an accurate assessment of voters' priorities would result in a calculus that yielded an optimal political outcome, or even one that truly reflected their desires and preferences, any more than it is evident that an algorithm that traced someone's taste in music or art would be able to create a work of art they would appreciate.

Perhaps more tellingly, Hidalgo's model – as is true of so many contemporary approaches –collapses individual and collective preferences, flattening the distinction between consumer and citizen sovereignty. We can read this distinction through Arendt's assertion of the properly political character of reflexive judgment – which emerges in her interpretation of Kant. What makes the faculty of judgment inherently political, and thus makes his *Critique of Judgment* the core of his political philosophy, according to Arendt, is that it relies upon a *sensus communis* – not so much a common sense as a *community* sense. She derives from Kant the maxim of judgment: to "Put oneself in thought in the place of everyone else" (as quoted in Zerilli 2005). She references, in this regard, Kant's description of idiocy – in the etymological sense of retreat into one's own private world – as a form of insanity. Lest it sound like this form of civic disposition means overcoming the bounds of a primary individualism, Arendt makes the point that sociality is not secondary to the individual: "we find … sociability as the very origin, not the goal of man's humanity, we find that sociability is the very essence of men insofar as they are of this world only" (as quoted in Zerilli 2005).

In an observation that will have an important role to play in Chapter 7, Arendt emphasizes the constitutive role of language and communication in sociality and thus politics and representation. As Degryse (2011) puts it, "She makes the mental process of judging dependent on actual speech and communication" (356). It is not enough to withdraw into a contemplative realm to imagine otherness in the abstract; rather, judgment requires engagement with others discursively and deliberatively. This is perhaps not surprising given the social character of language itself – its irreducible otherness even (especially) to those to whom it seems like a direct expression of an inner world. Language is another resource for dismantling the classical liberal version of primary individualism that characterizes neoliberal rationality. As Arendt (1992) puts it, "the nonsubjective element in the nonobjective senses is intersubjectivity" (67). Judgment relies precisely on such senses because it is irreducible to a pre-given conceptual frame. Judgment and representation become, in such a framework, the ground of communication: "We could even define taste as the faculty of judging of that which makes generally

communicable, without the mediation of a concept, our feeling [like sensa-tion] in a given representation [not perception]" (72).

The point of rehearsing this formulation is to craft an initial pass at the argument that judgment is grounded on a community sense and intersubjective logics of representation that are unavailable to automated systems. While it is true that such systems may reduce the element of human bias and emotion in certain contexts, there are also good reasons for being circumspect about off-loading key social decisions onto them. Some of those reasons are quite familiar: the prospect of laundering bias through computers; the power accu-mulated by those who own, operate, and control the systems (in a context where large commercial organizations have captured most of the recent devel-opments in the technology); and the unavoidable (at least for the moment) role played by humans in shaping, directing, and interpreting the technological findings. Arendt's definition of judgment identifies some additional concerns: that such systems reproduce a version of judgment that eradicates its political and intersubjective moment – its reliance on a living sense of community and on a subjective disposition that recognizes the way it is caught up in and reliant upon relations with others. This is one way of approaching the alarm still felt by many at the prospect of automated systems making decisions when life and liberty are in the balance. The two sections of this chapter converge on this concern: the material practices associated with automated targeting and cus-tomization contribute to suppressing any recognition of the underlying forms of intersubjectivity that enable neoliberal conceptions of individualism and consumerism. These range across customized information flows, privatized practices of viewing and listening, and the management of sociality-at-a-dis-tance described by Sherry Turkle.

We could even include the ways in which automated systems replace interpersonal interaction in everyday transactions. For those who live in same-day delivery zones, Amazon.com is rapidly replacing the privatized public spaces of the shopping mall. It is a company that renders consumption seemingly friction-free, which entails de-socializing it entirely, backgrounding the forms of exploitative, low-paid labor upon which it relies. An Amazon.com consumer can order and receive products of all kinds without ever having to interact with another human being. There are huge conveniences associated with these innovations, but these go hand in hand with the recon-figuration of social relations in ways that minimize the everyday interactions that serve as a reminder of the irreducible interdependence of social life. In this regard, Amazon.com is a fetishizing machine: an online cornucopia of products that appear as if untouched by human hands on the front door step. It is not surprising that the company is working on robotic delivery systems (including systems that automatically fire human workers (Bort 2019)), since the goal is to subtract humans from the process as thoroughly as possible.

The offloading of sociality onto automated systems in the cultural realm exacerbates the tendency toward abstract individual autonomy that underwrites the "idiocy" of neoliberalism and the breakdown of symbolic efficiency that

contribute to contemporary political polarization. The lived experience of sociality and the role it plays in the formation of a sense of individual freedom is crucial to the development of a civic disposition. Without it, our notions of freedom become untethered from their foundations and run the risk of transforming into their opposite. This tendency is discernible, for example, in the version of "freedom of expression" championed by the neo-libertarian right's mocking attacks on political correctness and the "troll-the-normies" attitude of the alt-right: that freedom of expression means the most corrosive and vicious forms of hate speech should be consequence-free. In many cases, these forms of expression are legally protected from prior restraint, but that is very different from imagining that they are somehow removed from the realm of social consequences. There has never been a normless speech community – an observation that also applies to alt-right trolls, who have an established pattern of violent threats and hostile actions (such as hacking, doxxing, and denial of service attacks) toward those with whom they disagree. The incoherence of such an approach: a claim to absolute free speech combined with the threat (and in some cases the exercise) of violence against those with whom one disagrees is symptomatic of the disarticulation of freedom from the community upon which it relies and a civic disposition that enables a recognition of this dependence. The notion that freedom of speech means freedom from community is the direct result of social de-skilling.

The broader point is that the lived experience of sociality in a wide range of forms serves as the basis of our ability to navigate the information environment just as, for example, the lived experience of moving through the physical world cultivates our ability to navigate space (O'Connor 2019). Automated information curation systems are like GPS for the information environment: they easily get us where we want to go, but they displace and reconfigure the lived experience of getting there. The commentator Oliver Burkeman, writing for *The Guardian* (2019), has argued that it is the sheer volume of information and time spent with the news that undermines democratic competence: "… the conventional wisdom among the politically clued-in – that what this moment calls for is more engagement with the news – may be the opposite of the truth" (2019). Being steeped in ongoing controversies and debates, algorithmically crafted to engage our attention, outrage, passion, and indignation to the point of addiction results, he argues, in the depletion of attentional resources for other aspects of our lives that are needed to nurture the resources for civic life. The solution he proposes is one of subtraction: "we might owe it not only to our sanity, but also to the world at large, to find a way to put the news back in its place." Burkeman's diagnosis, which relies heavily on the ideas of political philosopher Robert Talisse (2019), focuses on the pathological effects of social media platforms that sort people into politically hardened clusters and reconfigure deliberation as a battle of tweetable, sharable sound bites. He singles out the infiltration of politics into the social enabled via constant connectivity – a domain collapse that, he argues, allows "every topic of public disagreement" to spiral "rapidly into psychodrama."

The battle for online attention, waged by commercial media platforms, has transformed the imperative to be an "informed citizen" into an alibi for sucking up people's attention and diverting them from the other meaningful aspects of their lives that serve as a necessary resource for social life. For Burkeman, drawing on Talisse (2019), the paradox is that the political needs to be partaken of in moderation for democratic politics to function. As Talisse puts it, in an apparently confounding formulation for democratic politics, "in order to treat each other as political equals, we must see each other as something more than citizens" (as quoted in Burkeman 2019).

The focus of this chapter, by contrast, has been on the impoverished version of citizenship embedded in the attempt to automate the social practice of navigating our information worlds. Social media news feeds treat users not as citizens but as granular targets consuming information in isolation on personalized devices that displace other forms of sociality. Moreover, they rely on automated sorting systems that displace the lived experience of sociality that serves as a resource for shaping and navigating the information environment. The decline of community newspapers (Nielsen 2015), for example, has created a vacuum that has been filled by digital media platforms with automated curation systems. In contrast to social media platforms, the newspapers, even those owned by chains, were embedded in the communities they wrote about: the editors and reporters lived and worked alongside the politicians, residents, and businesspeople they covered. This set of connections created its own tensions and conflicts, but these unfolded in lived community relations: there were built-in resources for recognizing the forms of interdependence that characterize community life. Debates over local taxes, for example, played out not just in online Twitter battles but also in the daily social encounters with teachers, businesspeople, and parents. These community relations, in turn, could serve as a model for broader conceptions of imagined community: local relations of interdependence unfold, in an increasingly globalized world, into broader networks of reliance and interconnection.

By contrast, social media platforms abstract the process of information curation from any community context. Automated systems running according to non-transparent imperatives in remote locations determine what information is seen and shared. Whereas local news outlets had an interest in tempering extremism and sensationalism in their communities, remote platforms benefit from their exploitation. If, as a consequence, our capacity to deliberate as a citizenry – to recognize forms of mutual interdependence and thus to engage in the practice of political judgment – is increasingly degraded, the turn to automated politics becomes more tempting. Thus, the suppression of the conditions for the formation of what Arendt describes as a *sensus communis* ends up accelerating the cycle of automation. The analysis of this chapter suggests that the problem is not so much a "bandwidth" problem as a crisis of judgment – the dissolution of the infrastructures and practices that enable the forms of representation, reflection, and deliberation upon which judgment relies. The ready response, in either case, is to let the

machines sort it out – but, as I will argue in Chapter 7, this amounts to the fantasy of the eradication of politics altogether, and the subject along with it.

Notes

1 Some recent empirical research (Hall et al. 2017) has pressed against the "social displacement via social media" hypothesis, finding no support for the assumption that "social media decreases interactions with close friends and family" (12). Although the authors cite Turkle's work as an example of the social displacement hypothesis, her findings focus not on the frequency of contact but on the rhythm and character of social interaction. Parents and children may, for example, have face-to-face contact even while their attention and focus is directed toward their devices. From the perspective of Sunstein's concerns, the question is not whether interactions with close friends and family are displaced but whether public encounters are diminished through the privatization of public space associated with mobile, networked devices.
2 An episode of the TV series *Black Mirror* called "Arkangel" envisions this possibility – embodied in the form of a brain implant that allows parents to screen what their children see (Brooker, 2017).
3 A notorious op-ed piece in Forbes magazine by an economics professor argued that Amazon should replace libraries in order to save taxpayers money (Ha 2018).

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4   Pre-emption

A recent generation of start-up tech companies is pioneering the development of "proactive" surveillance cameras: monitoring systems that can respond automatically to what they record. A company called ZeroEyes, for example, claims to have developed a smart camera system that can recognize an armed attacker and send an automated alert to local officials with an image and precise details about the location and weaponry of the suspect. The image recognition software pioneered by the company promises to transform the existing network of surveillance cameras from a deterrent system into a network of early responders. As its marketing literature puts it,

> It would require more resources than most facilities have to have human beings monitor hundreds or thousands of cameras. At ZeroEyes, we use Artificial Intelligence to actively monitor camera feeds to detect weapons and people who could be potential threats.
>
> (ZeroEyes 2019)

A similar start-up called Athena, backed by silicon valley entrepreneur Peter Thiel, co-founder of PayPal and the notorious security analytics company Palantir, claims that it has developed smart camera systems that can recognize patterns of behavior that indicate violence or potential threat, including, "fighting, walking slowly when others are walking fast, virtually anything that …[deviates] from the norm" (Tucker 2019). As one press account put it, "The software can detect that a fight is about to occur milliseconds after the first punch is launched, before it even lands on the victim" (Tucker 2019). The temporality of such claims highlights the proposed shift in surveillance: from documenting violence to predicting and pre-empting it. The goal is to get as close to the emergent moment of violence or threat as possible: to identify a punch in progress. Embedded in this goal is the promise of automated response – only the machine is quick enough to intervene between the moment it detects a punch and when it lands.

These and similar start-ups have identified an economic opportunity in the reluctance of the United States to provide a policy response to the ongoing epidemic of gun violence (more than 1,000 deaths a month (Gun Violence

Archive 2019) and the grim drumbeat of mass shootings. They also mark a shift toward what might be described as *operational surveillance* – not just the automation of data collection but the automation of response. Athena provides authorities with the option of an oddly polite remote message triggered by the detection of a potential threat or crime: "This is Athena. I see you have a gun. Please stop committing a criminal offense. I have already called the police and they are on their way" (Athena 2019). ZeroEyes notifies local officials –such as school principals, shop owners, and faculty – and provides the option of automatically locking the building before an armed intruder can reach the entrance. From the perspective of operational surveillance, unmanned, "dumb" surveillance cameras are portrayed as reactive: good only for identifying suspects after the fact. By contrast, "smart systems" provide the ability to respond in real time. As one industry trade blog puts it, "In general, a reactive system relies purely on its recordings for information; however, it cannot prevent incidents from taking place as a proactive system may do" (Storage Servers 2015). The founder of Athena described her inspiration for the company in similar terms: "We looked at the current security surveillance cameras out there, and we noticed they are all very reactive, and nothing was proactive. Nothing was actually trying to help stop the crime" (Athena 2019). This common industry refrain represents a general shift away from the notion that the presence of visible surveillance in the form of security cameras has a deterrent, disciplinary effect. Back in the 1980s, by contrast, the trend toward installing closed-circuit security cameras was framed as a preventative measure. As the *New York Times* put it, in the wake of the notorious Tylenol tampering murders, "More and more companies, from banks to fast-food restaurants, drugstores and supermarkets, as well as subway authorities, are using closed-circuit television cameras in public areas to monitor and discourage crime" (Gaiter 1982).

The rise of AI-enabled systems thus reflects both the advent of new technological capabilities and a shift in the framing of surveillance as a strategy of control. The development of automated image classification makes it possible to replace human monitors and to add automated monitoring capability to previously un-monitored systems (whose recording function was evidentiary). At the same time, a shift in emphasis from deterrence to real-time pre-emption takes place against the background of concerns about "un-disciplinable," implacable threats: school shooters and terrorists who do not respond to the symbolic power of surveillance as spectacle. We are familiar with attempts to mobilize this power: we encounter it in the sign on the shop counter that invites us to "smile" because we're on camera, or when we see the telltale opaque domes that signify surveillance cameras in retail outlets. The message of these signifiers is clear: behave as if you are being watched at all times. The invitation recapitulates the French theorist Michel Foucault's (1979) description of Jeremy Bentham's proposed design for a Panopticon prison: one in which prisoners are housed in cells arrayed around a central

monitoring tower that instills in them the message that they could be watched at any time. As Foucault puts it, the Panopticon's

> 'major effect': to induce in the inmate a state of conscious and permanent visibility that assures the automatic functioning of power … in short, that the inmates should be caught up in a power situation of which they are themselves the bearers.
>
> (Foucault 1979, 201)

Such is the function of the roadside sign that warns "speed cameras in use" – we may not see the cameras, they may not actually be in use at the time, but they could be, and that should be enough, given the downside risk of a costly fine or a suspended license. If we know that we could be watched *at any time*, we are compelled – or so the story goes – to act as if we are being watched *all the time*. But anyone who has spent time on the highway knows that the symbol of surveillance is not always enough: hence the attempt to develop increasingly comprehensive monitoring systems – such as speed cameras that track drivers over long stretches to determine whether their average speeds indicate they have been speeding at some point. These systems replace punctual monitoring – at defined points along the road – with a more continuous tracking system that covers longer stretches of road (of course, it also misses moments of speeding that are offset by slower driving along the way). Automated traffic cameras at intersections remove the uncertainty associated with "being caught": if you run a red light, you get a ticket. Human observers may take a break or let their attention wander, but automated systems maintain a constant level of vigilance.

The endpoint of post-Panoptic surveillance would be the ability to replace the symbolic representation of total surveillance with its reality. This future seems all but inevitable as cars become networked; recent models already store information about speed and engine performance, and the future of autonomous vehicles is one in which following the speed limit will likely be built into the system. Panoptic surveillance is symbolic; it relies on the subjective response to the representations of surveillance. Post-Panoptic surveillance, by contrast, is operational – it can bypass the process of subjectification altogether. When automated systems override human decisions, speeding is not prevented by convincing drivers to follow the law; rather, it is pre-empted by the external intervention of these systems. The car will not let the driver speed, regardless of the driver's will or intention.

The example of speeding may seem like a narrowly tailored one, but the logistical shift is readily apparent across a growing range of social interactions. The operationalization of monitoring represents a shift in modalities of control and governance enabled by digital automation. Once upon a time, for example, software companies relied on legal threats to compel purchasers not to share software. Now the programs can automatically check online with headquarters to see if they have been legitimately purchased. More generally,

forms of control that once relied upon compliant subjects are being displaced by those that pre-empt subjective action.

We might describe this shift in terms of the difference between deterrence and pre-emption, and we can situate it within a broader historical context. In broad-brush terms, the transition from the Cold War as a culturally dominant conception of global conflict to the paradigm of the so-called Global War on Terrorism marks a shift from logics of symmetrical deterrence to those of asymmetrical pre-emption. Deterrence remains within the horizon of the symbolic logic of prevention: it relies on the ability of participants to incorporate simulated futures into their calculations as in the paradigmatic Cold War model of Mutual Assured Destruction. This model is based on symmetric power relations and on the rational calculus of individual actors regarding the consequences of launching a "first strike." Pre-emption, as in the case, for example, of the so-called "Bush Doctrine," assumes asymmetry, both of power relations and rational capacity.[1] Intervention is necessary, according to the logic of pre-emption, precisely because the symbolic logic of deterrence has failed. We might describe the distinction between the two in terms of the differing roles played by simulation. In the case of deterrence, simulation models a future to be avoided by all parties, resulting in the stasis of "cold" war. By contrast, pre-emption relies on simulation to predict future behavior that can be acted upon in the present by the dominant power. Pre-emption, in this case, is decidedly not "cold," but imposes the imperative of ongoing, incessant, and accelerated intervention. It is post-subjective in the sense that it bypasses the processes of subjectification upon which deterrence relies: that is, the assumption that the subordinate side will take into consideration the consequences of its actions and behave so as to avoid them (as in the case of the prisoners in the Panopticon, who internalize the norms of "proper" behavior so as to avoid punishment). There is no built-in systemic assumption of an internalized rational calculus on the part of those who are subject to intervention: they are not called upon to become docile subjects by estimating and responding to the likelihood and consequences of being caught.

This shift is significant insofar as pre-emption's effects include the rapid shrinkage of the space and time for deliberation. If predictions tend to focus on longer term trajectories – such as the impact of education levels or economic indicators on crime rates, for example – the temporality of pre-emption is compressed into the moment of emergence. The "ideal type" of pre-emption – its model concept – is that envisioned by "proactive" surveillance systems that can detect a threat in its moment of emergence and respond accordingly. The appearance of an armed suspect, for example, as he approaches a school or church triggers an alert system that mobilizes authorities to intercept him before he can act. Pre-emption operates in the register of the urgency of the imminent threat. This urgency is generalized across the social realms in which pre-emption is mobilized: does a data trail indicate that someone desires a particular product? Then this can be delivered before they act upon their desire: a product can be shipped to their doorstep before they order it. Does a

pattern of activity indicate the threat of a terrorist attack? A drone can intervene before the threat materializes.

In the context of pre-emption, the imminent threat becomes the lens through which a range of risks comes to be viewed by those with the tools for responding to them. All potential threats become imminent as they are identified. The fact that one or more people might commit a violent act at some point in the future fixes their present identity as constituting an urgent threat. The logic of pre-emption is one of "pure imminence" that comes to rely on a combination of probabilities: the high probability that a particular event will happen but a lower level of certainty about when. If the temporality of deterrence is that of indefinite postponement, that of pre-emption is the collapse of the future into the present: the urgent response to all future threats as if they were the same as an "active shooter" attack. In the logic of deterrence, present conflicts are referred to a future event (that is continually deferred); in that of pre-emption, this deferred future is collapsed into the present so it can be acted upon *now*.

The process of generating simulated futures in time to act upon them is increasingly the province of automated forms of surveillance, monitoring, and information processing. The fantasy of perfect pre-emption is enabled by structural power imbalances that enable the deployment of ongoing forms of intervention. Perhaps the most familiar military example is that of so-called "signature" drone strikes: pre-emptive killings based on pattern detection. This is the paradox of pre-emption: it requires enough information to be certain enough that something will happen in order to take extreme measures to prevent it from happening. This paradox is the reason for the sense of urgency associated with pre-emption: from the perspective of justification, the perceived certainty is allegedly high enough to warrant immediate action.

As in the case of deterrence, the logic of pre-emption is generalizable, and the technologies of simulation and automation on which it relies can be deployed in a range of securitization scenarios, including predictive policing. As the name suggests, predictive policing simulates future scenarios to act on them in the present. The shift in emphasis from past to future displaces narratives of causation with the goal of predictive intervention. The result is that pre-emption does not rely on forms of disciplinary surveillance and its attendant forms of subjectification (that is, getting people to "behave" by mobilizing the threat of surveillance and future punishment) but rather on post-Panoptic logics of surveillance that substitute total monitoring for selective surveillance. A further consequence is that decision-making processes are less open to political processes of deliberation, and it is in this regard that pre-emptive strategies reconfigure the role of citizens, both in terms of rights and responsibilities. Rights are subordinated to the need for total information capture, and responsibilities are delimited by automated decision-making processes that rely on information too voluminous for any individual or group of individuals to comprehend.

Deterrence and Pre-emption

The militarization of politics becomes a defining tendency of pre-emption, which takes for granted operational imperatives of efficiency and effectiveness. Deliberation and intervention at the level of underlying causes are displaced by the goal of just-in-time response. Consider, for example, an exchange between news reporter Amy Goodman of DemocracyNow.Org and California Senator Barbara Boxer in response to a United States Senate resolution to authorize the use of military force against the Islamic State of Iraq and the Levant (ISIL). Goodman asked whether, given the apparent failure of military intervention to adequately address the spread of ISIL (and, indeed, its role in the rise of ISIL), Boxer had any reservations about a "more-of-the-same" military approach (Goodman 2015). Boxer's response was immediate, visceral, and, in the era of pre-emption, increasingly familiar:

> I don't think you sit back with people cutting off the heads of Americans … I think this threat by ISIL is a massive threat and I think it threatens us all. I would never vote to put boots on the ground, but there are ways that we can help others so that they don't have to sit there while their girls have acid thrown in their faces and their heads cut off.
>
> (Goodman 2015)

Goodman responded that she was not advocating "doing nothing" but was instead asking whether it might make sense to address the underlying causes behind the rise of groups like ISIL rather than continuing the same military policies that helped bring them into being. Specifically, she suggested it might be a good time to examine the role of the United States' ally in the region, Saudi Arabia. When Goodman asked, "What about cutting off [ISIL's] support?" Boxer replied: "As far as trying to find out the root causes of why they are the way they are, I'll leave that to you. I'm a Senator and my people are threatened, so I'm going to take action" (Goodman 2015).

The exchange was a telling one insofar as Goodman's repeated attempts to address questions of politics, causality, and explanation were treated by Boxer as simply "doing nothing" – as if a paradigm in which foreign policy included anything other than the direct and immediate application of force had become an anachronism. In theory pre-emption and prevention might go hand in hand. However, in practice, the imperative of immediate response in the face of imminent threat postpones indefinitely an engagement with questions of underlying causes and political solutions. Pre-emption becomes not politics by other means but the foreclosure of politics altogether. The displacement of politics is facilitated by the ability of automated systems to lower the "human cost" of violent intervention – at least for those doing the intervening (as John Yoo argues in his defense of lethal autonomous weapons). Boxer emphasized the "costlessness" of the approach she advocates: without specifically mentioning drones (perhaps because the US drone

program remains officially classified), she repeatedly referred to her reluctance, as a self-described "leader" of the peace movement, to put "boots on the ground" (Goodman 2015).

The politics of Cold War conflagration privileged threat over actual conflict (at least in theory, if not in practice, given the number of proxy "hot" wars that took place during the Cold War). The urgency of the war on terror privileges one-way attack over two-sided conflict. It pre-empts asymmetric threat with asymmetric attack. In this respect, the forms of monitoring that characterize the war on terror are post-Panoptic: they rely not on discipline but on simulation; not on the spectacle of surveillance but on covert monitoring; not on incomplete or partial surveillance but on comprehensive data collection. The point is not that disciplinary practices have disappeared but that other regimes of monitoring with different logics have emerged to structure relations of power and control.

These logics are not only evident in shifting patterns of warfare but also in domestic forms of security and policing. They are thus relevant not just to international relations but also to domestic politics and citizenship. The next section explores the role of automation in reconfiguring domestic practices of control and governance around strategies of pre-emption.

Predictive Policing

In the realm of policing, pre-emption is characterized by increasingly sophisticated technologies and practices for anticipating criminal activity before it happens: the evolution of so-called predictive policing. When police describe predictive policing, the focus tends to be on what might be described as near-term pre-emption. The standard example, frequently cited in articles about the pioneering use of predictive policing technology in the city of Santa Cruz, California, recounts the case of an officer deployed in the nick of time to catch criminals in the act:

> A Santa Cruz beat cop … was eating his lunch in his patrol car in a downtown parking lot because it was on that shift's predictive list. He spotted two women trying to break into cars and arrested them.
>
> (Baxter 2013)

Pre-emption, in this context, remains short term – almost instantaneous. As the opening line of an article about predictive policing put it, "What if police could detect a crime before it happened? Say they could nab a burglar before he's even broken a window? Or stop a fight before the first punch has even been thrown?" (O'Donoghue 2016) – or, as in the case suggested by the "proactive" surveillance company Athena, intervene in the moment between the start of a punch and its landing. This type of response is not about prevention in the sense of transforming the conditions that contribute to theft or fighting; it is about being in the right place to stop an imminent act before it

takes place. The perfection of pre-emption, then, relies on the increasing comprehensiveness of monitoring and surveillance to predict behavior and to support automated infrastructures for intervention. This chapter explores the nature of this reformulation, its relation to emerging practices of predictive policing, and the disconnect between conventional public understandings of surveillance and its changing role in the policing process.

The goal of total surveillance does not mean that everyone is a suspect. Rather, it means that the target is not a particular individual but the population and the environment taken as a whole. The population serves as the background against which potential targets emerge. By contrast, disciplinary approaches rely on the narrativization of the influences and factors that contribute to the formation of a criminal profile. Pre-emptive practices do not intervene at the level of subject formation but at that of the emergence of events. They are *actuarial* in the sense that they assess overall patterns of risk to determine probabilities of the emergence of a threat event taking place at a particular time and place. The more comprehensive the data profile, according to the pre-emptive strategy enabled by automated data processing, the higher the likelihood of unearthing a relevant or actionable pattern.

The Temporality of the Future-Present

In the most general terms, predictive policing relies on the automation of data collection and processing to take "data from disparate sources, analyzing them and then using results to anticipate, prevent and respond more effectively to future crime" (Pearsall 2010, 16). The goal is to cast the data-gathering net as wide as possible, deploying "the power of big data to isolate patterns in otherwise random acts" (Ferguson 2012, 266). Predictive policing has become a much-hyped model for police departments seeking to allocate resources more efficiently and to embrace the data-mining technologies that are transforming other spheres of social practice. As the United States' most famous and self-promoting former police commissioner William Bratton put it, somewhat recursively, "Predictive policing used to be the future … . Now it is the present" (Black 2016).

By 2018 a third of all cities in the United States were reportedly using some form of predictive policing or considering doing so (Coats 2018), and there is research indicating that the programs have been more effective at predicting and reducing crime than human analysts have (Black 2016). However, the temporal paradox of pre-emption results in the fact that testing the accuracy of a predictive system is different from measuring its success. As a study of PredPol's effectiveness described by Wolpert (2015) indicates, the system is *accurate* if it is better at predicting precisely where a crime will happen than its human counterpart. This measure therefore relies on recording actual crimes. However, the system is described as *effective* if fewer crimes occur – that is, if crime rates drop in the neighborhoods where it is implemented. These two measures, then, have a tendency to cancel each other out: the

assumption is that if crime rates are reduced where the system is deployed, it is because police were dispatched to a site where a crime would have happened if they had not been there. Since a crime cannot be measured as both having occurred (accuracy) and being prevented (effectiveness), there is, necessarily, a temporal split in assessment: the system's accuracy can only be tested in a different time frame than its deployment. For example, the system is first used to predict crime before it is used to deploy forces – then if crime rates drop after deployment, the assumption is that this reduction is the result of accurate forecasts of criminal acts that were pre-empted. Presumably crimes were brewing in a particular location prior to the arrival of the police, whose presence thwarted them more or less in the nick of time. The leap of faith in the system is irreducible: it is difficult to prove that a crime which did not happen would have.

Nevertheless, the apparent success of such programs underwrites the development of a post-Panoptic model of surveillance that challenges historical expectations and understandings by displacing (or complementing) disciplinary forms of crime management and prevention with actuarial forms of surveillance directed toward the goal of pre-emption. This shift has consequences for both policy discussions and the public's understanding of the role of police surveillance in the database era. Whereas once upon a time those concerned about crime rates might have inquired into the societal and individual causes of violent or criminal behavior, the question now shifts in the direction of "Are there enough data to predict and pre-empt it?"

This deflection is apparent in the pattern of post-9/11 law enforcement funding. The US Local Law Enforcement Block Grant program, which once provided support for community crime prevention, saw its funding drop precipitously in the post-9/11 era and was replaced completely in 2004 to make way for the Federal Justice Assistance Grant program, which focuses on equipment and training (Bauer 2004). Midnight basketball programs gave way to the database and algorithm (as well as enhanced technologies for surveillance). The emerging emphasis is not so much on governing subjects as on finding ways to predict and pre-empt eruptions of violent or criminal behavior assumed to take place with some degree of regularity across the population. This shift coincides with a reconfigured role for surveillance.

Revisiting the Panopticon … Again

The fictional portrayal of pre-crime detection in the movie *Minority Report* collided with reality for 22-year-old Chicagoan Robert McDaniel, when a police officer showed up at his door one summer day to warn him not to get into trouble because the police were watching him. The warning was reportedly triggered by a predictive policing program used by the Chicago Police Department, which generated a "heat list" of "the roughly 400 people in the city of Chicago supposedly most likely to be involved in violent crime" (Stroud 2014). This heat list was created by algorithms that

combined historical crime information used to identify past hotspots of criminal activity with lists of everyone in the city who had been arrested for or convicted of a crime and information about the people with whom they were in contact. The goal was to narrow down a reasonably manageable list of suspects to streamline the surveillance process. As described in the media coverage, the heat list model also conserves what might be described as a disciplinary model of policing (Foucault 1979). The surveillance process announces itself to those being watched in the form of a warning: "You are being watched: Behave accordingly."

In this respect, the famous Foucauldian description of the Panopticon prison in *Discipline and Punish* bears further examination: "The Panopticon is a machine for dissociating the see/being seen dyad: in the peripheric ring, one is totally seen, without ever seeing; in the central tower, one sees everything without ever being seen" (Foucault 1979, 202). The prison inmate may not see the superintendent in the central observation tower, but the tower plays the role of a constant reminder: it must be ever-present to the inmate's gaze. Therefore, as Reg Whitaker (1999) observes, the Panopticon relies on the power of spectacle – it incorporates both Panopticism (the few watching the many) and Synopticism – the many observing the spectacle of the (gaze of the) few. Surveillance technologies that rely on the logic of discipline – the internalization of the monitoring gaze – always incorporate an element of the spectacle: a cue or clue that one is being watched. Agents of discipline have been known to make use of the signifiers of surveillance to replace actual monitoring. For example, an empty police car with a uniformed mannequin can serve as a speed trap to slow traffic (at least for a while). As Simon (2005) puts it, "What is important for Foucault's version of Bentham's plan is that the inmate be aware of the gaze of the supervisor through signs of their presence" (11).

Discipline relies on the spectacle of surveillance because it mobilizes processes of internalization and subjectification. The goal of the monitoring apparatus is to compel the subject to work on him- or herself. As Simon (2005) puts it,

> At the very least then, the simple Panopticon presumes a population of rational actors who share a homogenous base of knowledge … . Under a purely structural- deterministic model, people who are blind, ignorant or irrational would be immune to the effects of Panoptic power.
>
> (16)

The Panopticon is thus an economizing machine driven by a utilitarian conception of rational choice decision-making – all of which is not surprising given that it was originally proposed by the founder of utilitarianism. But we might push this argument a bit further along the lines traced by Simon (2005): the Panopticon relies not simply on a particular conception of the subject but also on a well-functioning process of representation: the efficacy of the spectacle. Even the most rational of utility-maximizers face

an impasse when it becomes impossible to derive a coherent message from the welter of available information. Discipline depends on both the ability to recognize the process of surveillance at work and to determine the imperatives represented by the monitoring gaze. Crucially, it postulates a subject who is willing and able to internalize these imperatives.

From *Columbo* to *Cops*

Pre-emption, enabled by automated systems, dispenses with these attributes of the subject, pushing beyond disciplinary models. Elayne Rapping (2004) traces this trajectory in her exploration of a shift in the televised representation of criminality that exposes the rise of incoherence as a policy. She draws on an analysis of crime dramas, arguing for their ideological role "in maintaining social stability and the authority of the state" (218). Changes in the fictional formulas of such dramas, she argues, correspond to shifts in representational forms and logics that, in turn, align with changing societal understandings:

> When major shifts in the processes and policies that drive law enforcement systems occur, it is invariably television … that plays the most powerful role in "informing" the public of these shifts, and helping it to adjust, culturally and psychologically, to their implications.
>
> (220)

Rapping (2004) describes the rise of the reality show *Cops* in terms that invoke the failure of the logic of discipline and the spectacle of surveillance. *Cops*, which follows police officers responding to calls in a range of jurisdictions in the United States, was the longest running show on the Fox Network (25 seasons). The show has moved to Spike TV, where it is in its 28th season as of this writing. For Rapping, *Cops* marks the shift away from a disciplinary approach to criminality, one in which the figure of the criminal was:

> transformed from a figure of essential evil to a subject of study for the new science of criminology, in which a "gentler way of punishment" for "docile bodies" – disciplined from birth to internalize and conform to the norms of society or feel guilt for the failure to do so – could be managed.
>
> (221)

Disciplinary policies rely on the generation of knowledge-based reform practices that enlist the vocabulary of "deviance, delinquency, reform, and rehabilitation" (Rapping 2004, 228) embraced by 20th-century discourses of sociology and criminology. By contrast, Rapping (2004) argues that *Cops* portrays a version of criminality that accords with what we might describe as emerging strategies of incoherence. In *Cops*, criminals are "incorrigibly 'other' and 'alien;' incapable of internalizing or abiding by the norms and

values of a liberal democracy, for they are far too irrational, uncontrollable, and inscrutable for such measures to be effective" (227). The criminals portrayed on *Cops* are not figures who participate in the rational calculus inspired by the threat of surveillance and the specter of punishment: they come to represent the resurgence of the category of the undisciplinable. The staging of the show emphasizes the obliviousness of the alleged criminals it portrays to the power of the monitoring gaze. They are on TV and yet are unable or unwilling to "behave."

The post-Panoptic approach to threat and risk becomes increasingly familiar in the post-9/11 era. As Rapping (2004) notes, the paradigmatic figure of non-narrativizable and ubiquitous threat is the terrorist:

> Terrorists are irrational, inscrutable, and inherently violent… . And they cannot be "reformed" or "rehabilitated" according to traditional correctional methods because they neither recognize nor respect the codes to which such measures apply.
>
> (225)

This observation captures a characteristic attribute of pre-emption more generally: the "black boxing" of the subject. The non-narrativizable subject is a feature not just of policing and security but a growing range of automated decision-making processes. Do people respond to one ad more readily than another? Are people who use particular browsers liable to be better employees? Does crime rise when the barometric pressure drops? Why ask why – the finding is enough, and perhaps more data and more correlational findings will generate additional useful information more readily than any insight that might be gleaned from the "why" question. In the realm of terrorism and criminality, it has become taboo to ask the why question – the sign of an intolerable political correctness that absolves actors from individual responsibility by reducing the emergence of evil to a question of sociology. The notion of causality is subsumed to the question of emergence – the question is no longer "why?" but "when?", "where?" and "how?" Such approaches are fundamentally conservative in the political sense: they take social conditions as a given and in so doing contribute, perhaps inadvertently, to their reproduction.

The "Becoming Environmental" of Surveillance

Advances in media technology and practice often migrate from the realms of warfare and security to that of the market, but in the case of predictive policing, the direction has been reversed. Law enforcement's interest in mathematical modeling and data mining migrated from the tech sector to the urban precinct in the first decade of the 21st century. This is not to say that crime data have not been incorporated regularly into policing practice, nor is it to overlook the role that policing played in pioneering techniques of measurement

and pattern analysis (see, e.g., Sekula 1986). Rather, it is to note a shift in the ways of thinking about and handling information inspired by developments in the tech industry, which developed in a relatively short time huge databases and the techniques and technology for putting these to use. If, once upon a time, the public sector served as the repository for most of the stored data in the world, the advent of the information economy resulted in a dramatic role reversal, one perhaps highlighted by an anecdote in *TIME* magazine about a surprise visitor to Facebook founder Mark Zuckerberg at his corporate head-quarters. In the middle of one of Zuckerberg's meetings,

> The door opened, and a distinguished-looking gray-haired man burst in … trailed by a couple of deputies. He was both the oldest person in the room by 20 years and the only one wearing a suit. He was in the build-ing, he explained with the delighted air of a man about to secure ironclad bragging rights forever, and he just had to stop in and introduce himself to Zuckerberg: Robert Mueller, director of the FBI, pleased to meet you.
> (Grossman 2010)

The FBI director was genuflecting before the master information aggre-gator, someone who could amass the most comprehensive profile of the daily life of users on an unprecedented scale by getting them to do the work of providing the data themselves. As subsequent revelations indi-cated, Mueller's fascination may well have been a practical one, given that security agencies have found ways to piggyback on the data collection practices of major players in the tech sector, including Google, Microsoft, and Facebook (Ackerman and Rushe 2014).

Networked, interactive technologies make it possible to collect and store huge amounts of data, but they also mark a change in the pragmatics of monitoring. If once upon a time intelligence agencies focused on individual targets, the focus has shifted to the population and the pattern. Predictive policing, insofar as it relies on increasingly comprehensive forms of data collection, marks the moment when policing becomes "environmental" (Anderson 2011, 220). Perhaps one of the telltale precursors of this moment is the work of former Police Commissioner Bratton, who, in 1990s New York City, implemented a policy of zero-tolerance enforcement inspired by the "broken windows" thesis (Wilson and Kelling 1982). This thesis might be described as environmental in the sense that it called for intervention not in the form of the management of particular individuals but rather in shaping the context in which they operated. This "slippery slope" approach to poli-cing postulated that seemingly minor symptoms of public neglect served as a gateway to more serious forms of neighborhood decline and an attendant rise in the rates of criminal activity (Harcourt 2009). Shortly after bringing this brand of environmental policing to New York City, Bratton developed the prototype for subsequent forms of predictive policing called CompStat, cou-pling "zero tolerance with a data-driven approach" in using "data analysis to

identify crime hot spots, on the premise that allowing police to focus man-power will reduce crime rates" (Bartosiewicz 2015).

The development of so-called intelligence-led policing fits with the goal of compensating for tighter budgets by using technology to assist in the more efficient allocation of resources. When Bratton moved to Los Angeles, he oversaw a collaboration with two University of California professors who had done predictive analytics for the US military. The connection was a defining one insofar as it merged counterinsurgency techniques with policing, a trend that has marked a characteristic form of convergence in the post-9/11 era, when warfare has taken on elements of policing (no longer limited to defined times, spaces, and personnel) even as policing has adopted the approaches and tools of counterinsurgency (thanks in no small part to the transfer of military equipment from de- escalating combat zones in the Middle East). This con-vergence has been underwritten in part by the Urban Areas Security Initiative, which helped mobilize urban police for counterterrorism operations to the tune of more than $8 billion (Bartosiewicz 2015). In this regard, Rapping's (2004) invocation of the figure of the terrorist to describe shifting configurations of criminality in the urban landscape proved prescient.

The promise of data-driven efficiency served as the rationale for pre-dictive policing's economic model. PredPol is a for-profit initiative that makes its pitch to police departments based on the promise of reduction of crime rates through efficient allocation of resources. Law enforcement officers can be made more productive simply by adding a healthy dose of data. As Jeff Brantingham, the UCLA anthropology professor who helped develop PredPol, puts it,

> You're helping to optimize the precious time that police forces have …
> if you can take those limited resources and help them be just a little
> bit more efficient, which is really what this predictive policing and
> PredPol is all about, you can actually go a long way with those small
> amount of optimizations.
>
> (Funnell 2015)

Policing as Counterinsurgency

As suggested by the image of the pin-covered map that served as the basis for intelligence-led policing, the emergence of criminal behavior becomes framed as emergent and "punctual" in the sense described by Ben Anderson (2011). He argues that, from the perspective of counterinsurgency, the target "only appears in punctual events of violence before disappearing again" (Anderson 2011, 222), a temporality that suggests a reconfiguration of the civilian–criminal distinction. The risk of the eruption of criminality is understood to be distributed probabilistically across the population, such that it might emerge at particular points in time and space with differential likelihoods. Thus, everyone gets a threat level assigned to them and everyone is folded into the pattern of monitoring and data capture. As Anderson puts it, "This

means that the time outside of punctual events is not best thought of in terms of 'waiting.' … Instead, it is characterized by an intensification of attempts to know the population" (222).

In the era of intelligence-led policing, surveillance becomes *environmental*, as suggested by the 2016 admission by US National Security Director James Clapper that "In the future, intelligence services might use the [Internet of Things] for identification, surveillance, monitoring, location tracking, and targeting for recruitment, or to gain access to networks or user credentials" (Ackerman and Thielman 2016). Shifting models of policing go hand in hand with emerging technological developments, including the advent of a fully "sensorized" social environment in which the physical world becomes equipped with an interactive overlay that makes possible the extension of surveillance "throughout life without limit" (Anderson 2011, 218). It is not a coincidence that, at the moment when comprehensive monitoring becomes the goal, we are subjected to ongoing invitations to incorporate always-on information capture devices into our homes and workplaces.

If the model of disciplinary power is the confessional – the space within which the subject provides a narrative account of him- or herself – the avatar of pre-emptive power is the smart city, which records the individual's behavior and interactions in detail. If the disciplinary goal is the spectacle of surveillance, the pre-emptive one is its disappearance through ubiquity. If surveillance is everywhere, it is no longer a discrete process but the medium through which we move. Disciplinary surveillance can be partial but must be known (to its targets). Postdisciplinary surveillance can be covert, but it must be comprehensive. This is not to say that postdisciplinary surveillance does not have disciplinary effects (awareness of comprehensive monitoring could lead to the internalization of a monitoring gaze in some cases), but rather to note that these effects are not its defining purpose.

Similarly, if the object of disciplinary power is distinctly human in terms of its narrativized subjectivity, that of pre-emptive power can be assimilated to a range of "natural" forces. PredPol notoriously draws on earthquake-modeling techniques to predict recurring patterns of criminality. As PredPol's chief scientist puts it,

> Some of the models we use at PredPol are self-exciting point processes that were originally developed for modeling earthquake aftershock distributions… . The fact that these point process models fit earthquake and crime event data quite well is, by itself, a cool result.
>
> (Mohler 2015)

Other approaches to predicting street crime analogize gang activity to wolf pack behavior (Smith et al. 2012), further naturalizing and desubjectivizing the specter of criminality. Such approaches highlight the disparity between disciplinary surveillance and environmental power. An earthquake cannot participate in ongoing logics of self-definition and self-disclosure; it remains

external to processes of subjectification, as do the members of the wolf pack. In both cases, the most that can be done is to redouble nature so as to simulate its activities in ways that yield actionable knowledge. As Jeff Brantingham of PredPol puts it in his description of the mathematics of pre-emption,

> The naysayers want you to believe that humans are too complex and too random – that this sort of math can't be done … but humans are not nearly as random as we think… . In a sense, crime is just a physical process.
>
> (Quoted in Rubin 2010, 10)

This formulation is a telling one: it highlights the physicality of crime in contradistinction to what? Its sociality or, perhaps, its subjectivity? From the perspective of the data mine, criminality has billiard-ball predictability. The promise of perfect pre-emption relies on what William Bogard (1996) describes as "the simulation of surveillance," the goal of which is not simply to map the environment but to redouble it in the form of the model: "The imaginary –the impossible – of surveillance is perfect exposure. The imaginary of simulation is the perfect double. Finally, the imaginary of the simulation of surveillance is the perfect doubling of exposure" (47). By collecting enough data, not only the past and present are mapped but also the future – a process that posits the reduction of agency to detectable "physical" patterns invoked by Brantingham.

Although predictive policing models tend to rely largely on historical patterns of crime data – and, in some cases, on scraping social media and other readily available personal data – the tendency is toward collecting as much information as possible. Surely, environmental factors might figure into criminological calculations (e.g., weather patterns and barometric pressure) and also biometric ones (discerned through the implementation of emerging forms of sensors, such as the Department of Homeland Security's pioneering efforts to detect "malintent" via the monitoring of body temperature, facial expression, pulse rate, and other signals) as well, of course, as genetic factors and eventually all available and imaginable forms of data collection and modeling. Research conducted in Finland, for example, discovered that people with two particular genes were "13 times more likely to have a history of repeated violent behavior" (Hogenboom 2014) than those without the genes. Based on their sample, the researchers estimated that "at least 5–10% of all violent crime in Finland could be attributed to individuals with these genotypes" (Hogenboom 2014). Genetics becomes one more factor in the "becoming environmental" of data collection, prediction, and intervention. A platform called HunchLab is expanding the reach of typical predictive policing programs to include, in addition to data on past criminal activity, factors such as "population density; census data; the locations of bars, churches, schools, and transportation hubs; schedules for home games – even moon phases" (Chammah 2016). According to one description of the application, whereas some correlations are to be expected, "Others are more mysterious: rates of aggravated assault in Chicago

have decreased on windier days, while cars in Philadelphia were stolen more often when parked near schools" (Chammah 2016).

Such an approach takes on the speculative character of other data-driven strategies: dump in as much information as possible and see what types of correlations emerge. Because the goal is pre-emption and not explanation, there is no need to interpret the findings (e.g., by asking why assaults decrease when the wind increases): simply allocate resources accordingly.

Pure Imminence

Common-sense understandings of monitoring practices have not necessarily kept pace with these postdisciplinary shifts. For example, one of the more intriguing aspects of the public debate triggered by the FBI's attempt to get Apple to help it access data stored on the iPhone of a mass shooter in San Bernardino was that it seemed to generate a more robust public response than revelations about the government's widespread monitoring of US citizens. As *The New York Times* put it, "The Apple case already seems to have garnered more public attention than the Snowden revelations about 'metadata collection' and programs with code names like Prism and XKeyscore" (Shear, Sanger, and Benner 2016). Why might the public be more concerned about the attempt of law enforcement to access the phone of a known mass murderer than wholesale spying on the populace? The *Times* article speculated that "Because the issue now centers on a device most Americans carry in their pockets, it is concrete and personal in a way that surveillance by the National Security Agency never was" (Shear et al. 2016). As Lee Rainie of the Pew Research Center put it, "It's an in-your-face proposition for lots more Americans than the Snowden revelation was" (quoted in Shear et al. 2016). It is not entirely clear why the FBI accessing someone else's phone might be more "in your face" than the NSA accessing data about your phone and everyone else whom you have called. Perhaps more "in your face" refers to the fact that a team of investigators was surely getting ready to read and analyze everything they could find on the phone. This case was not one of impersonal machines scanning and sorting large quantities of data but something more personalized: government agents reading through data otherwise accessible only to the phone's owner.

The public might still be more attuned to a disciplinary model of surveillance based on the compulsion of self-disclosure. This type of investigation looks more familiar and personal: the 21st-century version of investigators breaking down their doors and sifting through their personal effects. People think of phones as their own, whereas they have come to understand circulating data as something already beyond their control – that is, not so much something they own as something they provide. However, there may be something more at work in the differential reception of these two apparently disparate types of state surveillance: a disconnect between the ways in which data miners and those who supply the data think about how they can be put

to use. Data miners think in terms of pattern and correlation, whereas the "minees" think in terms of specific human audiences and their own life stories: who might be interested in the details of their lives and why. In this respect, the differential reception of the two forms of monitoring represents the emerging disconnect between their scope and depth: the focused targeting of particular suspects versus the wholesale monitoring of an entire population associated with automated forms of surveillance and pre-emption.

The advent of predictive policing marks one realm in which post-Panoptic logics take shape and thus serves as a useful site for considering the political consequences of the shift from discipline to pre-emption enabled by automated media. The fantasized perfection of prediction compresses the time frame for intervention: long-term preventative measures are displaced by immediate pre-emption (in the sense of coming just before the act – "in the nick of time"). This shift in temporality has social and policy implications that flow from the tendency toward automation. The goal of ubiquitous, always-on surveillance emerges against the background of the perceived failure of the disciplining power of the monitoring gaze. If subjects cannot be relied on to discipline themselves, then surveillance must become as comprehensive as possible. However, this level of monitoring requires automation of data collection and data processing and, eventually, of response. As the examples of Athena and ZeroEyes that opened this chapter suggest, automated detection implies, inevitably, automated response. Even a "proactive" surveillance system is only as fast as its weakest (or slowest) link: human response time. Once such systems are in place, automated response systems become inevitable. If a smart camera can identity an active shooter, the next step will be to get it to stop one in his tracks.

The imperative of automation is also underwritten by the imminence of the threat, or rather by the reframing of any predicted risk as an imminent one: if it can be known, that is enough to render it actionable. The delay of deliberation is ruled out in the face of the imminent threat. At the same time, the competence of experts and everyday citizens is challenged by the accumulation of so much data that it cannot be processed by any individual or group of individuals. The concern raised by this chapter is thus threefold: that the shift to predictive policing leads to a self-reinforcing spiral of pre-emption in which the failure to address underlying causes mobilizes the "need" for ever more comprehensive forms of surveillance, that the rhetoric of imminence combined with the goal of automation reduces the time and space for deliberation and causal analyses, and that public understanding has not yet caught up with the implications and consequences of these automated forms of monitoring and surveillance. Postdisciplinary logics of monitoring have the somewhat ominous consequence of replacing the negotiation of competing causal claims with the direct, asymmetric, and ongoing application of pre-emptive power. This power aligns itself with the ongoing process of offloading deliberative and

social processes onto automated systems: the abdication of deliberation and politics in favor of their automated versions.

Note

1 The so-called Bush Doctrine is the informal name for the approach outlined in the Bush White House's 2002 "National Security Strategy of the United States," which includes the following rationale: "It is an enduring American principle that this duty obligates the government to anticipate and counter threats, using all elements of national power, before the threats can do grave damage … To forestall or prevent such hostile acts by our adversaries, the United States will, if necessary, act *preemptively* in exercising our inherent right of self-defense" [emphasis added] (Bush 2006, 18).

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5 The Operational City

The march of interactivity and automation associated with digital technology is simultaneously a process of privatization – or what David Harvey has called "accumulation by dispossession" (Harvey 2009). Rather than territorial accumulation (or in addition to it), the rise of the interactive city is predicated on data accumulation. As physical space becomes permeated by commercial sensing systems, it is transformed into the interface for automated data collection and thus for the accumulation and privatization of data. Once equipped with proprietary sensor networks, public space can be equipped with an overlay of privatization, following in the footsteps of the Internet. Consider, for example, the prospect of self-driving cars, which rely on new infrastructures of networked, sensor-equipped devices. These will piggyback on the well-established public infrastructures of roads and highway, but they will create an overlay of privatized applications. If, as seems likely, the platform for the cars will be privately controlled, it will offer developers a range of commercial possibilities. As automated circulation systems replace public traffic signaling, for example, those who are willing to pay a premium may be able to move more quickly through congested streets. What was once a "common carriage" system – a roadway that, for the most part (except for high occupancy lanes and toll lanes), treated traffic equally – will become a highly stratified one. Low-income riders will find their traffic "choked" to enable high-speed transit for the privileged. In the absence of preventive regulation, the wealthy may be able to pay to have traffic routed away from their neighborhoods or even to exclude some classes of drivers. The road may remain public, but the driving "apps" that govern its use can, through the development of private infrastructures, become increasingly commercialized.

This mode of accumulation via interactive platforms can be harder to discern because it manifests itself in the electro-magnetic spectrum through the construction of virtual and informational enclosures that capture and privatize the information available in public, domestic, and commercial spaces. The process is not without physical traces, including the fast-developing sensor infrastructures that permeate daily life in informated societies and that include networks of smart cameras, embedded microphones, smart speakers, and so on. In terms of urban infrastructure, for example, the LinkNYC kiosks in New

York City have replaced the telephone booths made obsolete by the rise of mobile telephony. The erstwhile public phone booth has been turned into a network that provides free WiFi and electricity in exchange for the ability to hoover up data about people as they make their way through the city. The private consortium responsible for LinkNYC is led by Sidewalk Labs, which is in turn owned by Google's parent company Alphabet, making Google a pioneer in the next generation of privatized urban development (Pinto 2016).

The LinkNYC project reboots a decade-old plan by Google to provide free urban WiFi in exchange for the commodity it values most: information. Back in 2006, it proposed a similar project in San Francisco that was never implemented. Now, however, it has the capacity to collect a growing range of data with a variety of uses, thanks to the development of data-mining strategies and the accumulation of huge additional data sets in the interim. Free, commercially provided, WiFi is the gateway technology for the privatization of the city. Google has embarked on an even more ambitious attempt to remake urban life "from the Internet up" with its plans to redevelop part of downtown Toronto as a "smart city." The smart city has been a recurring theme in the cyber-capitalist imaginary, which seeks to transform the physical world into an interface – creating new markets in both data and infrastructure along the way. The so-called Internet of Things dramatically expands the potential markets for computer technology by promising to provide any device, appliance, or space with an interactive overlay. At the same time, it helps render the physical environment increasingly malleable, responsive, and customizable, facilitating new forms of automated convenience and control. Reliant on often-privatized forms of automated data collection and response, the smart city becomes an operational city: a locus for forms of governance that act upon the urban milieu to provide an immersive and flexible "choice architecture." This chapter draws on the example of the smart city to explore the operational bias of automated media and its role in environmental systems of governance. The technocratic dream is to transform the city into a fully interactive space: the physical analogue of a social media platform, whose users' trajectories can be mapped and modulated.

The smart city envisions the moment when digital enclosure and the space of urban life converge. This result is the platforming of urban space as a contemporary model for urban capitalization and control. That a giant tech company like Google sees the public life of the city as a frontier for its ambition to organize the world's information speaks to the historical role of the city as a site for the concentration of surplus capital. As David Harvey puts it, there is an "intimate connection" between the development of capitalism and urbanization: "Capitalists have to produce a surplus product in order to produce surplus value; this in turn must be reinvested in order to generate more surplus value" (Harvey 2008, 24). Urban environments concentrate workers, consumers, infrastructure, and culture in ways that lend themselves to capital-intensive reinvestment. The tech industry becomes an obvious source for the investment

of surplus capital thanks to the success of regulatory and economic policies that have steered the public sector toward austerity while allowing commercial entities to accumulate huge, undertaxed cash reserves. In the United States, for example, the top five tech companies have amassed reserves totaling about one fifth of the US annual budget (Rapier and Pelisson 2017).

The city's function as a site for capital concentration and the investment of surplus value places it in tension with its historical role as the *locus classicus* of public life. In contrast to the relative isolation of rural life, the geographer Don Mitchell argues that "cities were necessarily public – and therefore places of social interaction and exchange" (Mitchell 2012, 18). Precisely because of this, along with the concentration of people and institutions, cities are rich sites for interactively generated data: they are, from the perspective of tech companies, endlessly productive information troves. Thanks to the development of interactive technology, then, the city is not just a site for capital re-investment but also for the extraction and monetization of data. As Harvey notes, capitalism is perennially in search of "new means of production in general and natural resources in particular, which puts increasing pressure on the natural environment to yield up necessary raw materials" (Harvey 2008, 24). This search provides the impetus behind processes of colonization and imperialism whereby new resources are captured and controlled. The process of digital enclosure amounts to a form of endo-colonization (Virilio 2005) of urban space: thanks to the deployment of privatized, commercial, digital monitoring systems, new resources can be extracted from urban environments when they are redoubled in informational form. Rather than continually expanding outward in the search for new resources, interactive infrastructures turn back upon themselves, reconstructing space in digital form so that its unfolding can be exploited. As one headline in *Atlantic* magazine put it, "The City of the Future Is a Data-Collection Machine" (Fussell 2018).

The New Snake Oil

The notion that data is a "valuable" commodity has become such a truism of the digital era that it is easy to forget why. The answer should come as no surprise, despite the fact that it flies in the face of the techno-utopian hype about digital democracy and empowerment. Data is valuable because it promises to facilitate and make more efficient processes of control in realms ranging from governance and security to commerce and marketing. In the context of neoliberal economic policies, the market emerges as a central and defining control mechanism, one whose perfection has long been predicated on the promise of total information access. The barriers to the smooth, efficient functioning of markets, according to neo-classical economics are twofold: monopoly control and imperfect information. Early on, Bill Gates predicted that the Internet would realize the dream of "friction-free" capitalism by facilitating the widespread circulation of

information about commodities to consumers: "This will carry us into a new world of low-friction, low-overhead capitalism, in which market information will be plentiful and transaction costs low" (Gates, Myhrvold, and Rinearson 1995).

Bill Gates anticipated that online sellers would put some local stores out of business, but he was not pessimistic enough to envision the rise of a global retail giant that would undercut and co-opt the competition to claim de-facto monopoly status in many markets for a range of goods (Merrill 2014). He also did not take into account the way in which online platforms would not only inform consumers but also generate huge troves of data about their preferences, and their behavior. The speculative value of data, as we are continually reminded, is based not just on the promise to lower the information costs of transactions but also on the ability to predict and shape consumer behavior.

The online economy's real information trove, from the perspective of control, is not data about products and prices but about people and contexts. There is a familiar Janus-faced rhetoric propounded by the marketing industry: the consumer-facing side treats people as autonomous individuals – classical liberal Lockean subjects with pre-formed, internally generated desires, preferences, and needs; whereas the client-facing side portrays them as the product of social structures – discursively defined, shaped, and influenced. Gates reproduces the consumer-facing model of the subject, for whom economically relevant information is all about commodity features and prices. Contemporary data collection goes far beyond this, mobilizing the promise that detailed information about patterns of customer behavior holds the secret of anticipating consumer response.

The same is true, as we saw in Chapter 4, of monitoring for the purposes of security and law enforcement: the promise is that increasingly comprehensive data collection can yield actionable information about future patterns of behavior. Because this form of monitoring relies on intervention and not on processes of subjectification (that is, the modification of behavior in response to symbols of surveillance), its goal is comprehensive surveillance. If risk management in a post-disciplinary context relies on the extension of monitoring "throughout life and without limit" (Anderson 2011, 224), the same might be said of opportunity. From a marketing perspective, the opportunity for profit is an emergent property, thanks in part to the anytime, anywhere consumption environment of the Internet. One needn't be in a shop or a mall to initiate a purchase, because the entire networked environment is a space of consumption (and labor) thanks to the affordances of the digital enclosure. Consumption, on this account, equally exists as a ubiquitous emergent potential conditioned by an infinitely expandable range of variables (is it affected by weather, the phase of the moon, mood, etc.?). Thus, both monitoring practices – for security and profit – converge on the goal of transforming the environment into a fully sensorized landscape.

The Urban Milieu

Urban spaces lend themselves to monitoring because of the high concentration of people, transactions, and interactions – all of which maximize the information that can be collected from sensor networks. The promise of the smart city as "operational city" is to mobilize these networks for information collection and environmental modulation: to capture detailed information that can be used to tailor the interactive "choice environment" to prompt the responses favored by those who control the platform. As in the case of the online environment, these two functions – information collection and environmental adjustment – feed off one another: information is used to reconfigure the interactive environment, which, in turn, collects information about people's responses to restructured conditions. Interactive systems don't just collect information; they generate it through endless permutations and experiments. This dynamic model is borrowed from the Internet's malleable digital environment, which allows for ongoing, large-scale, iterative experimentation on users: does one version of an ad generate more clicks than another? Does one price point work better for a particular demographic? Are teenagers more likely to respond to a particular advertising appeal if their online posts indicate they are unhappy? It is no coincidence that the enthusiasm for so called "nudge" approaches (Thaler and Sunstein 2009), which act indirectly on people through intervening in the choice "environment," has coincided with the rise of online marketing and advertising. The digital realm lends itself to the ongoing reconfiguration of so-called choice "architectures" – and the large-scale data collection that feeds into their design.

The conceptual foundations of the smart city, then, build upon the environmental model of surveillance and modulation pioneered by the commercial Internet. As Adam Greenfield notes, the idea of a smart city has a double valence: on the one hand, a series of high profile and highly publicized municipal development projects over the past couple of decades in places including South Korea, the United Arab Emirates, Portugal, and Toronto; on the other, the "bottom-up" implementation of the "Internet of Things" as an infrastructure for monitoring, convenience, and control. Greenfield describes this broader meaning of the term as encompassing "the … far more consequential drive to retrofit networked information technologies into existing urban places" (Greenfield 2013, 201). Both approaches forward the potential of data-driven rationalization as a response to the complexity of managing the contemporary urban environment. As Greenfield puts it, the "first postulate" of the smart city is that "the contemporary urban environment is so complex and so vexatious in its demands that no group of ordinary, unaided human beings can hope to understand it, let alone manage it wisely" (2013, 203).

In this regard, the smart city partakes of the post-political tendencies of automation described elsewhere in the book: it offers a technocratic cocktail of solutions for the organization and administration of public life in highly concentrated urban environments. As in other realms of social practice, the hope is

that data can be used to address not just logistical issues (how to get the buses to reflect changing commuting patterns), but also social and political ones. In his manifesto for the Quayside project, the CEO of Google's Sidewalk Labs outlines the potential benefits of the "smart" city for all aspects of social life, from politics and social engagement to employment, cost of living, environmental impact, education, and health: in short the erstwhile domain of the political (Doctoroff 2016). In a parody of post-political dystopia, we are asked to imagine how smart environments might address the fallout from our abdication of the political. If we cannot organize to respond to the challenge of climate change, maybe the environmental efficiencies realized by "smart" utility and transport systems will save us (this seems unlikely given the huge amounts of electricity consumed by burgeoning sensor infrastructures). If the United States cannot bring itself to pass meaningful gun control legislation, maybe an array of automated response systems will catch and disable threats as they emerge. If we refuse to fund public education adequately, maybe automated learning systems can educate our children in return for detailed data about their every action and communication. If we cannot bring ourselves to behave as self-governing citizens, maybe the machines can rule on our behalf.

Google's vision for the Quayside development aligns itself with the classic form of the smart city vision described by Greenfield: "evacuated of history, evacuated of politics – ultimately, evacuated of urbanity entirely" (2013, 113). It is telling that the designer and tech consultant Marc de Pape withdrew his application to work as "Director of Residence Experience" for Google's Toronto project in part as a response to being asked about new mechanisms for voting:

> Although I was shocked and offended by the question as a Canadian (how blindly-ambitious do you have to be as a private American company to even imply that our public voting systems are within your mandate?), it was not until after the interview that I realized I … was talking to a company that aspired to export a complete platform for cities, and civics, using Toronto as an incubator.
>
> (De Pape 2018)

It is not a long series of steps from a Google takeover of the voting system to the automation of voting preferences based on one's past preferences and behavior, as envisioned by MIT's César Hidalgo. Now Google fills out our search requests and finishes our text messages for us, soon, thanks to the combination of data it collects from our online and offline lives, it may know whom we want to vote for, perhaps better than we ourselves do.

Urban "Idiocy"

There is a profound tension between the publicity of the city and civic life and the implementation of privatized, commercial systems for the redevelopment

of urban space. Put in somewhat different terms, commercially driven automation offers to "idiotize" urban life in the sense described by Mitchell, drawing on Marx's description of the "idiocy of rural life": "Idiocy in this sense does not refer to the intelligence of the inhabitants, or even the nature of their customs, but to the essential privacy – and therefore isolation and homogeneity of rural life" (Mitchell 2012). The automated city runs the danger of culminating in what urban geographer Kafui Attoh (2017), picking up on the same Marx and Engels quote, has described as the "idiocy of urban life." Attoh draws on the work of Hal Draper to argue that,

> Marx and Engels employed the German word idiotismus (translated as idiocy) in the classical sense (from the Greek word idiotai) to mean: 'a private person, withdrawn from public (communal) concerns, apolitical in the original sense of "isolation from the larger community".'
> (Draper 2004, 220)

For Marx and Engels, he argues, "idiocy" in this context referred to the conditions of disaggregated and isolated activity that prevented the formation of a robust civic and public life. For both Marx and Engels, "Rural idiocy, in fact, made proletarianisation impossible. It made the formation of a 'class for itself' not only unfeasible but unimaginable" (Attoh 2017, 198).

By contrast, the industrial city, for all its depredations, also served as a space wherein political and civic life could thrive: "cities held out the possibility for new alliances and new coalitions" (198). Attoh, however, notes that such a view of the city is historically tied to industrial logics of enclosure and concentration. Attoh's concern regards the fate of public transportation in the digitally enhanced urban environment, and he argues that "'privatised isolation' is as much an urban phenomenon as it is a rural one" (207). For Attoh, what makes a city "idiotic" are transportation policies and infrastructures that isolate, disaggregate, and exclude – but his argument extends to the forms of individuation and self-enclosure that characterize the operational version of the smart city. The hypothetical model of self-driving cars in the smart city neatly encapsulates what Raymond Williams (2003) once described as "mobile privatization": each resident enclosed in a physical and informational cocoon as they pursue their individual itineraries. For Attoh, a poorly planned, privatized transportation system "functionally prevents populations from being part of the public." This version of "idiocy" recalls the dissolution of a civic disposition under conditions of increasing customization, personalization, and targeting described in Chapter 3. At stake in both of these analyses is the fate of politics – a theme taken up in more detail in Chapter 7. The attempts to bypass the political and to dispense with the subjective moment of judgment complement one another: they are two aspects of the "bias" of automation.

This is not to deny that data has an important role to play in the administration of a range of organizational processes, but rather to highlight the persistent attempt to collapse the political into the technical, as if the solution to societal and political conflicts were simply a matter of imperfect information. The notion that politics could be dispensed with if information and communication systems were "perfected" (along with markets) recapitulates what John Durham Peters (1989) identifies as one of the classical liberal assumptions undergirding communication theory: that conflict is at its base a form of misrecognition and misunderstanding – a function of imperfections in the medium – that can be addressed by eliminating the friction and distortions of the medium. The bias of automation reconfigures this approach for the digital era: social problems are a function of the limitations of human subjects in the face of the large amounts of information they need to address the complexity and pace of modern society. Machines can step in to take on the information load that has become too heavy for humans to bear, thus resolving the inefficiencies and shortcomings that result in political conflict. If enough information can be collected and processed, the whole complex system can be made sense of and sorted out, freeing humans up from having to manage society.

Such a model of the world depends on the assumption that with enough information all the pieces fit neatly together: that the world can be, in a sense, understood and engineered "all the way down." Critiquing the post-political bias of automation means engaging with the possibility that the world does not work this way: that it cannot be captured and measured "all the way down," because there are irreducible uncertainties and gaps in reality that require the exercise of judgment described in Chapter 3, and that the subject can be understood as a correlate of that gap, an argument taken up in more detail in Chapter 7.

The "idiocy" of automated approaches, then, can be traced to the way in which they figure the subject as analogous to their version of the environment: not the site of an incompleteness or lack but an entity that, with enough data, can be fully specified (as if it would somehow be possible to develop a sensor array comprehensive enough to capture the universe). This is what Kurzweil suggests when he imagines that a reconstructed bot of his father might be more like his father than his father was. However, the total specification of the subject, as Justin Smith observes, reverses into its obliteration: "human subjects are vanishingly small beneath the tsunami of likes, views, clicks and other metrics that is currently transforming selves into financialized vectors of data" (Smith 2018). He links the "financially driven destruction of human subjecthood" to the fate of language, and thus, by extension, to deliberation, representation, and democracy, as these are displaced by automated systems:

> A writer who works on the old system of production can spend days crafting a sentence, putting what feels like a worthy idea into language, only to find, once finished, that the internet has already produced

countless sentences that are more or less just like it … There is, it seems to me, no more place for writers and thinkers in our future than, since the 19th century, there has been for weavers.

(Smith 2018)

If all the permutations have been specified in advance, there is nothing left to write, no gap in the matrix that overlaps with the unspecifiable core of the subject.

Jean Baudrillard, perhaps newly relevant in light of the attempt to redouble the world in digital form, describes the process of virtualization as one of self-obliteration:

What is the idea of the Virtual? It seems that it would be the radical effectuation, the unconditional realization of the world, the transformation of all our acts, of all historical events, of all material substance and energy into pure information. The ideal would be the resolution of the world by the actualization of all facts and data.

(Baudrillard 1995, 101)

He likens the fantasy of total informatization to the Arthur C. Clarke parable of automation, "The Nine Billion Names of God," in which a group of monks hires an IBM team to help them write out every possible alphabetic permutation of the names of god, a task they estimate would otherwise take them 15,000 years. Thanks to the IBM computer, they are able to complete the task in just 100 days, at which point the computer programmers look up (as the story notes, "There is always a last time for everything") to see the stars blinking out one by one (Baudrillard 1995, 101).

The ambition of achieving total specification, impossible as it may be, manifests itself, in practice, in the process of hyper-customization. Thus, the more immediate challenges posed by the smart city as "operational city" is to the spatial and social conditions underpinning the public disposition crucial to civic life. The smart city builds into the urban architecture the tendencies described in Chapter 3: digital cocooning in the name of convenience and efficiency. Automation, in this context, effects another dialectical reversal: from the cosmopolitanism of the polis to the customized "idiocy" of the online world. For Mitchell, cities are "necessarily public and therefore places of social interaction and exchange with people who were necessarily different" (Mitchell 2012, 18). The etymology of the political – its connection to the "polis" – is not incidental in this regard, which is why so much political and critical effort has gone into elaborating what Henri Lefebvre dubbed, "the right to the city" (1996). For David Harvey, this "right" is about "greater democratic control over the production and utilization of surplus investment in the city. Since the urban process is a major channel of surplus use, establishing democratic management over its urban deployment constitutes the right to the city" (Harvey 2008, 37).

However, the plan to hand control of a core area of a city like Toronto's Quayside over to a Google subsidiary pushes in the opposite direction: toward the colonization of civic life by a commercial corporation. Such an effort exemplifies Harvey's claim that, "Increasingly, we see the right to the city falling into the hands of private or quasi-private interests" (Harvey 2008, 38). If the city is a collective work – an *oeuvre*, as Mitchell (2012) puts it – offloading its administration and management onto automated systems alienates their creation from those who produce it. There is an element of surrender in the appeal of automation: a willingness to concede that the complexity of social life under current technological conditions is beyond the reach of human comprehension and thus irrevocably alienated. Why not leave the administration of public life to the companies that simultaneously provide us with the endless stream of digital content that helps fill the void left by public life? This is a disturbing perversion of the hope that the widespread access to information made possible by the Internet would enhance democracy by creating a universally informed citizenry. The worst-case scenario is that we will be endlessly informed and diverted, while the municipal machine, run by Google or some other tech giant, continues its course un-harassed.

We might temper this with the observation that there are processes that benefit from automation in ways that improve urban life and may even bolster civic participation by freeing people up from the time-suck of commuting or by facilitating productivity that enhances the quality of life. At the same time, as Chapter 3 suggested, there is an ongoing tension between commercial priorities that privilege consumer sovereignty, and democratic ones that underwrite civic life. There is also a persistent tendency to assimilate political decisions to technocratic logics, blurring the boundary that distinguishes the realm of mechanical decision-making from that of judgment – as in the case, for example, of the prospect of "lethal autonomous weapons" or self-driving cars placed in the position of making life-or-death decisions.

From the perspective of urban life, there is a strong commercial imperative to extend the reach of automation indefinitely. The generativity of the populace, coursing through the city according to the rhythms of production, consumption, leisure, and domestic life becomes an ongoing and increasingly rich source of value extraction in proportion to the growing sensor array. The enclosure of the urban space by coordinated monitored networks enables reconfigured forms of control and governance that enlist the biases of automation, including operationality and environmentality. The following sections consider how each of these contribute to the "idiocy" of the city described by the geographer Attoh – that is, the material processes that exclude, stratify, and privatize.

Environmentality

Automated systems, to the extent that they surpass the human capacity to track activity and recognize patterns, enable the data equivalent of an Olympian perspective: a sweeping view from on high. The ability, for example, to process

thousands of medical research articles in a matter of moments to reveal previously unknown drug interactions realizes long-standing science fiction fantasies of superhuman information-processing powers (the trope of the alien, robot, or prosthetically enhanced human who flips through thousands of magazines and downloads entire databases in the blink of an eye – or Negroponte's prediction that we will one day "know" the entire works of Shakespeare by popping a pill). If the subjective perspective limits the ability to capture, define, and process a space, place, or situation in its entirety, the "mediatization" of smart spaces embraces the prospect of comprehensive information capture. In visual terms, we can discern this perspective in the development of aerial cameras, such as the drone-mounted Gorgon Stare – that claim to be able to monitor an entire city in real time (Thompson 2015). Lisa Parks, building on the work of Ayal Weizman, has described aerial data capture as a form of "vertical mediation" (Parks 2016). The aerial image has long served as a metaphor for the omniscience of a god's-eye view (Amad 2012), but the prospect of embedded sensing pushes beyond verticality (which often still implies a situated viewpoint) to what might be described as "atmospheric" or environmental mediation. If the aerial perspective is a view from on high, the atmospheric one is a "view" from everywhere at once and thus nowhere in particular. It is not simply a view, in the sense of visual data capture, but a sensory amalgam: the combination of whatever information sensors can collect – images, perhaps, but also sound, temperature, atmospheric pressure, mood (of people), interaction patterns, traffic flow, wastewater flow, and more.

Automation enables data collection in the atmospheric register and thus the possibility of treating the environment or, to borrow a term from Foucault, the "milieu," as a medium of governance. Foucault's conception of "biopolitics" as a mode of governance devoted to managing the overall wellbeing of populations already pushes in this direction:

> Biopolitics' last domain is … control over relations between the human race, or human beings insofar as they are a species, insofar as they are living beings, and their environment, the milieu in which they live. This includes the direct effects of the geographical, climatic, or hydrographic environment.
>
> (Foucault 2003, 245)

Distinctive in this formulation is the move away from the subject as the focal point for the exercise of power – a trajectory that continues in his subsequent two lectures, particularly when he notes, with respect to mid-20th century German neoliberalism, what he describes as "a massive withdrawal with regard to the normative-disciplinary system" (2003, 260). As noted in Chapter 4, the disciplinary system is subject-centered, in the sense that it relies on the internalization of the norms established by the surveillance apparatus. The milieu is the locus of a transformed modality of governance, less reliant on the disciplinary system insofar as it relies

upon: "the perpetual intrication of a geographical, climatic, and physical milieu with the human species" (2007, 23). In keeping with the logics of pre-emption described in Chapter 4, Foucault observes that the "political technique that will be addressed to the milieu" is "one of the fundamental elements" in the "deployment of mechanisms of security" (2007, 23). In the same lecture, he describes intervention at the level of the milieu by invoking the neoliberal embrace of an "environmental technology," which, rather than acting directly on subjects, focuses on the context in which they act. Recently popularized versions of "nudge" theory (Thaler and Sunstein 2009) are a pop-culture distillation of milieu-based governance, in which "action is brought to bear on the rules of the game rather than on the players … in which there is an environmental type of intervention instead of the internal subjugation of individuals" (2009, 260).

The shift parallels broader historical developments in capitalist modes of production and distribution. Disciplinary control is the logic of industrial management in an era of mass production. It relies on strategies of threat and homogeneity associated with the figure of the "norm" – the model worker, patient, inmate, and citizen. Disciplinary strategies are a product of scarcity: the only way to ensure everybody is watched is to make people watch themselves. Automated environmentality, by contrast, is the logic of consumerist, post-industrial customization. As Jean Baudrillard put it, "There is no longer any imperative of submission to the model, or to the gaze 'YOU are the model!'" (Baudrillard 1994, 29). We form the basis of models that are more like us than we are ourselves.

As automation comes to play an increasingly important role in production processes, the focus of governance turns to processes of consumption, leisure, and domesticity. The disciplinary model of "productive and docile" is exchanged for that of "hyper-consuming and hyper-interactive." Informed processes are devoted to expanding the reach of workplace management, but the model of environmentality blurs the boundaries of labor, leisure, and domesticity. Many of the advances of productivity in the online economy derive from the realm of consumption, which becomes increasingly generative and (inter-)active. The goal of the digital economy is total capture of formerly "non-productive" time – or rather, its enfolding into interactive contexts that render this time productive. Jonathan Crary (2013) got it wrong when he identified sleep as the last refuge from the productive machinery of capital: thanks to digital monitoring devices, even sleepers can generate useful data for marketers and data brokers (about our health, the rhythms of our working lives, where we live, whom we sleep with, and so on).

From the perspective of environmental governance, diversity is a generative resource: each individual response provides a new data point for the automated systems that modulate our information environments. "Nudge" theory's version of "libertarian paternalism" (Thaler and Sunstein 2009) eschews prescriptive forms of discipline. As a form of "environmentality," it monitors people to determine how best to engineer their behavior by

exploiting their patterns of response. Its other defining element is the tendency toward increasingly fine-grained customization. The a-social tendency in libertarianism is amplified and enhanced by technologies of specification and customization. As the name "libertarian paternalism" suggests, such an approach envisions the possibility of urban governance in the absence of a polity and of civic life. The work of control takes place not on the inside – through processes of individual training and discipline – but from the outside, via an environment that serves as sensor, probe, and, when necessary, agent. As Jennifer Gabrys (2014) observes in her discussion of governance in the smart city, Foucault's description of "environmentality" "suggests the subject or population may be less relevant for understanding the exercise of biopolitical techniques, since alterations of environmental conditions may become a new way to implement regulation" (35). This formulation neatly captures the shift from discipline to prediction – from internalized forms of prevention to externalized modes of pre-emption, from the symbolic role of the camera as a signifier of surveillance (addressed to disciplined subjects) to the operational one of automated data capture that monitors behavior in order to intervene directly in the environment.

When the environment becomes a sensor, there is no clear delimitation of what is to be collected, sorted, and processed – a result in keeping with the emergent and speculative character of data mining. Restricting the scope of data collection would run counter to the goal of unearthing unanticipated correlations. It is not surprising that the deployment of monitoring devices favors always-on data capture, which is enabled by the expansion of networked interactivity. As Chapter 6 argues, automated data collection might then be described as "frameless" in several senses. It can dispense with selection criteria – a "framework" for deciding in advance what information is relevant. Since there are no pre-selection criteria, we can expect that the data collection infrastructure will continue to expand indefinitely: interactive devices will accumulate new and more sophisticated sensors to capture ever-expanding categories of information (biometrics, mood, etc.). The smart city becomes shorthand for anticipating the comprehensive "sensor-ization" of the lived environment. Finally, there are no spatial or functional grounds for delineating between monitored and non-monitored spaces. In the disciplinary model of industrial control, surveillance focused on the workspace (and other designated sites of regulation: the school and the prison, for example). Monitoring helped delineate spaces of production from those of leisure or domesticity, which were not subject to the concentrated regimes of oversight and control associated with the workplace. In the digital era, by contrast, networked interactivity de-differentiates the monitoring process: data capture comes to permeate a growing range of spaces and activities, in a growing range of sensory dimensions.

If Foucault's version of environmentality envisioned governance via "milieu," smart cities provide the added twist of automating data collection, feedback, and response – not just the mode of governance but

also its functioning. Automation enables the customization of governance – the ability to modulate the "choice architecture" in increasingly individuated ways. Bill Gates anticipated the element of solipsism characteristic of the online economy when he predicted a quarter century ago that viewers would one day customize the movies they watch to make themselves the stars ("you'll watch *Gone With the Wind* with your own face and voice replacing that of Vivien Leigh or Clark Gable") (Gates, Myhrvold, and Rinearson 1995, 128). There is a hermetic, "idiotic" tendency in this version of culture: the impulse to subsume the entire external world to the self: wherever we look we find only our own face staring back. The trajectory of automation in the register of customization is to reduce the external world to the self. This devouring reduction of otherness and the non-identical is what Adorno once described as the "rage" of every idealism (2003, 23).

The commercial imperative of customization transposes the play of difference from the space of urban publicity to that of the privatized database. What renders automated governance particularly powerful is its ability to register the variety of tastes, preferences, and behaviors to which mass media and mass society were largely oblivious. The database thus becomes a differentiating machine: capturing details of individual behavior and incorporating them into customized information environments in accordance with targeted marketing strategies. Such is the commercial strategy behind the LinkNYC system – which captures only a tiny fraction of the information that could be generated by urban sensors.

To date, the implementation of smart city technology has lagged far behind the hype, but given the huge capital amassed by technology companies and their incursion into the process of urban development, there are pressing reasons for considering what it might mean to allow a company like Google to combine its online data about individuals with the information that can be gathered from the physical space of the city.

Such concerns are compounded by familiar examples of exclusion and bias that constitute long-standing concerns about the "right to the city." An IBM-supported smart city project in Rio de Janeiro, for example, concentrated traffic monitoring systems in wealthier areas of the city, "exacerbating already existing inequalities" (Privacy International 2017, 17). Networked surveillance systems in the Philippines have been used for the suppression of political dissent by the Duterte government (Privacy International 2017), and smart city developments in India have led to the forced displacement of working-class communities and the street vendors, whose presence was credited with keeping the streets safe (Privacy International 2017).

Technology has a role to play in enhancing civic life, but commercial platforms have profound conflicts of interest when it comes to serving as infrastructures for democratic deliberation and participation. The apparent willingness of a city like Toronto to turn its civic space over to a Google subsidiary marks the extent to which social issues are being

framed as technocratic ones. It is a sign of the phenomenal success of the tech industries, the consolidation of the neoliberal mania for privatization, and the enabling response of the media that the commercial takeover of urban life seems like a natural next step for Silicon Valley. If there was once reluctance to let commercial platforms reconstruct pillars of civic life such as the public schools, now educational institutions embrace Facebook and Google as if they were public utilities.

Operationalizing Idiocy

The platforming of the communicative city envisions its transformation into an "operational city"[1] whose functions are administered in auto-mated and opaque ways. The notion of "operation" in this context is borrowed from the work of Trevor Paglen, who juxtaposes it to "repre-sentation" – in both its political and symbolic senses. As a visual artist, Paglen is interested in the fate of the image in an era of automation, drawing on the work of filmmaker Harun Farocki, who researched the images generated by industrial machines to represent the activity of their sensors to human operators. As Farocki put it, "I called such images … 'operative images.' These are images that do not represent an object, but rather are part of an operation" (2004, 17).

When Paglen attempted to update Farocki's work more than a decade later, he discovered that "machines rarely even bother making the meat-eye inter-pretable versions of their operational images that we saw in [Farocki's] *Eye/ Machine.* There's really no point. Meat-eyes are far too inefficient to see what's going on anyway" (Paglen 2014, 3). Over time, as machines became more complex and increasingly automated, the production of an image for human viewers was irrelevant and superfluous. At work here is an *anesthetics* of dis-appearance – not the dematerialization of the screen explored by Paul Virilio (2009) but its obliteration. The operational image described by Paglen is post-representational, post-screen, and post-aesthetic. As operations become auto-matic, they disappear into the machinic apparatus. Just as the sensors fade into the environment, their sensor output dissipates into the atmosphere of invisible electro-magnetic communication. The "images" they create are beyond human access and comprehension, comprised of multidimensional and multisensory inputs merged into the convergent language of bits.

George Dyson highlighted the logic of operationality in an essay marking the start of 2019, "The digital revolution began when stored-program com-puters broke the distinction between numbers that *mean* things and numbers that *do* things. Numbers that do things now rule the world" (Dyson 2019). We might generalize this observation to information more broadly: data that *does* things threatens to displace or bypass questions of representation, meaning, and interpretation. Is there any deeper meaning to be discerned behind the fact that, for example, the use of one Internet browser to fill out a job application correlates with better job performance? Does it matter? Do

employers care? Such questions apply to automated data-collection processes more generally: as we switch our focus to "machine-readable" inputs we dispense with a familiar conception of understanding. Large data sets may make it possible to predict behavior with a certain degree of reliability, but they do not necessarily contribute to our understanding of this behavior – a process that turns upon representation and meaning. However, we are hurtling toward a future – even in our conceptual approaches – in which we will lose the distinction between prediction and comprehension.

It perhaps comes as no surprise that "transparency" is the rallying cry for accountability at a time when there is nothing left to see. We seek a representation (yet again) of the unrepresentable: the complex interactions between millions of variables and the reasons behind the emergent decisions they generate. Even if the databases were to be thrown open by force, the decision-making process has retreated into the neural nets and emergent processes of data mining and machine learning. The trajectory of automated operationalism does not just raise important issues of accountability; it also collapses the space of representation and thus of politics.

Taken to its limit, the endpoint of data-driven decision-making is the automation of judgment described in Chapter 4. In practical terms, the goal is to develop automated systems that make decisions that govern life, liberty, and opportunity. In this respect, automation embraces the logic of *immediation* (the invisibility or disappearance of the medium) that parallels the promise of virtual reality. Both partake of what the philosopher Slavoj Žižek describes as "the dream of a language which no longer acts upon the subject merely through the intermediate sphere of meaning, but has direct effects in the real" (1996, 196). This is the promise of machine "language" – which differs from human language precisely because it is non-representational. For the machine, there is no space between sign and referent: there is no "lack" in a language that is complete unto itself. In this respect, machine language is "psychotic" in the sense that Žižek uses to describe virtual reality:

> If, in "normal" symbolic communication, we are dealing with the distance (between "things" and "words") which opens up the space for the domain of Sense and, within it, for symbolic engagement, in the case of virtual reality, on the contrary, the very over-proximity (of the sign and the designated content) disengages us, closes up the space for symbolic engagement.
> (1996, 196)

Symbolic (or "natural") language, in Žižek's terms, opens up the space for interpretation, politics, and judgment, precisely because of its gaps, its incompleteness. By contrast, operationalism offloads the labor of civic life onto automated systems – it envisions the perfection of social life through its obliteration. Always-on connectivity has culminated in the pathology of communication overload, which, in turn, provides data for the machine-

learning systems that promise to solve the problems they have created by automating our sociality for us.

As automated media work their way into the urban fabric, they offer to reshape not just the information we share and access but also the modes of control and governance that shape our social worlds. The urban environment lends itself to sensor-based data capture because of the way it concentrates social activity. It becomes, in its own way, a site of information glut to be organized and sorted by those companies that are playing an increasingly central role in managing our information culture. As we increasingly cede the organization of our cultural realm to automated commercial platforms, we find a similar process at work in the design, construction, and function of physical space – as well as in the construction of the virtual overlay we are told is coming in the form of ubiquitous data capture, "interactive" spaces, and augmented reality. It is a sign of the times that even the public sector looks to the tech industries to take on the large-scale municipal, regional, and national projects that were once the province of public investment and public policy (herein lies one of the big differences between the infrastructural imaginary in the West, where big-picture thinking is offloaded onto the private sector, and China, where tech companies are enfolded into large, state-supported initiatives). As hubs of economic productivity and civic life, cities are also key sites for the emergence of regimes of control and governance that incorporate new information and communication technologies. They are the places we can look to consider the impact of automation on the conduct of social life, which, in turn, is shaped by the use and flow of information. The pressing question we will face as our cities become increasingly permeated by commercial platforms once relegated to the online realm is how to address the biases of automation as these reconfigure economic and public life. It will be both an ongoing challenge and a crucial task to maintain the boundary between administrative tasks and political life – to avoid the automation of politics, the hollowing out of the subject, and the attendant forms of urban idiocy prepared in advance for us by customized convenience and control.

Note

1 I am indebted to Ned Rossiter for this formulation.

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6   Framelessness

The fate of representation in an era of digital simulation has been dramatized by various parables of the map – a symbol of the power of representation as abstraction. Like consciousness, maps rely on selectivity, since, for finite beings, navigating the world requires leaving out some details and focusing on others. In his whimsical novel *Sylvie and Bruno Concluded*, Lewis Carroll (1988) highlights the impracticality of a "total" map – one that would cover the territory in its entirety: "We actually made a map of the country, on the scale of a mile to the mile!" boasts a professorial character called "Mein Herr." "It has never been spread out, yet … the farmers objected: they said it would cover the whole country and shut out the sunlight. So we now use the country itself, as its own map, and I assure you it does nearly as well" (143). The notion that a territory might serve as its own map dispenses with the logic of representation: what it gains in completeness it surrenders in utility. In his parable "Exactitude in Science," Jorge Luis Borges (1998) similarly highlights the futility of a one-to-one scale map, which he portrays as an imperial ambition that ends in ruin:

> the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations … saw that the vast Map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars.
>
> (1998, 272)

A map that coincides with the territory is like a story that tries to tell everything all at once – that is, no story at all. Such a map replaces the goal of understanding or navigating a world with the godlike ambition of reproducing it in its totality – aiming not for representation but simulation (or creation). Thus, Jean Baudrillard begins his influential *Simulacra and Simulation* by inverting the Borges parable: in our mediated world the map "precedes the territory": simulations shape our reality in the sense that, for example, a genetic profile might lead to pre-emptive surgery, or a computer model might be used to deny

employment to job applicants based on their data profiles. However, such for-
mulations still maintain a distinction between simulation and reality that for
Baudrillard becomes untenable: "it is no longer a question of either maps or
territories. Something has disappeared: the sovereign difference, between one
and the other, that constituted the charm of abstraction" (1994, 2). This point of
collapse is where long-time tech guru and *Wired* magazine co-founder Kevin
Kelly picks up the thread in his 2019 annual article for the magazine, gesturing
back to Borges's original formulation: "We are now building such a 1:1 map of
almost unimaginable scope, and this world will become the next great digital
platform" (2019). Baudrillard, whom Kelly does not mention in his article, is
probably the more appropriate reference, since Kelly is describing the con-
vergence between virtual and material reality: the latest digital ambition of the
Empire of technology. As Kelly puts it, "Deep in the research labs of tech
companies around the world, scientists and engineers are racing to construct
virtual places that overlay actual places. Crucially, these emerging digital land-
scapes will feel real; they'll exhibit what landscape architects call placeness"
(2019). The virtual map envisioned by "augmented reality" coincides directly
with the built environment, but this time, to hear Kelly tell it, the full-scale
overlay will not fall prey to uselessness and obsolescence, because it is not
simply a question of representation. The digital map he describes will be
operational: the information world will digest the physical world in order to
transform it into an inhabitable Internet: "On this platform, all things and
places will be machine-readable, subject to the power of algorithms. Whoever
dominates this grand third platform will become among the wealthiest and
most powerful people and companies in history" (2019). When the world is
platformed, the owners of the platform will rule the world.

   In a grand imperial gesture, platforming reality will require reproducing
everything in digital form:

> To recreate a map that is as big as the globe – in 3D, no less – you need to
> photograph all places and things from every possible angle, all the time,
> which means you need to have a planet full of cameras that are always on.
> (2019)

And not just cameras, presumably, but sensors of every kind for every
dimension of information necessary to create a full digital reconstruction. All
information about everything will have to be collected in real time. The digi-
tal overlay will operate as a virtual mirror, reflecting the world back to itself
in machine-readable form. Only the prospect of automation makes the
ambition of reality-platforming possible, since only automated systems could
conceivably collect and process information on this scale. As in the example
of the singularity, the prospect of a map coextensive with reality only makes
sense from the perspective of the infinite. The fantasy of automation is that in
the breadth of its reach, in the ambition of its scope, it can approach the post-

subjective perspective of the view from everywhere – or nowhere: the purely objective representation that leaves nothing out.

It would be harder to find a better example of "framelessness": the view from nowhere that corresponds to the attempt to monitor everything at the same time, all the time. There is a totalizing ambition at work here: a play for digital omniscience enabled by the prospect of automated data collection and processing. The ambition of the post-human rests on the promise that machines will bootstrap us to a new level of perception unavailable to finite human subjects, endowing us (or our digital prostheses) with the ability to put to use all the information we've collected without having to understand it (since comprehension defaults back to the level of representation). This is what differentiates the machinic god from its predecessors: we may not inhabit its perspective but because we built it we can turn it to our ends. The all-too-human process of representing and understanding the world is replaced by the goal of reproducing it. Total information collection and virtual reality go hand in hand. At the same time, the spatial boundaries that differentiated the realms of work, leisure, and domesticity have been reconfigured along with those that separated knowing from doing, and image from referent. "Depth models" become obsolete in the era of the one-to-one map, because the surface appearance and the underlying reality coincide.

Once upon a time, in the 1990s or thereabouts, the Internet was figured as a unique place (a "cyberspace") we might enter into, complete with a new set of affordances: virtuality, interactivity, connectivity. In recent years, however, this vision of a distinct information space has overflowed the bounds of the screen, spilling out into the world formerly known as "real life." As the physical world becomes increasingly interactive, it takes on some of the characteristics of online spaces. We find traces of this interactive overlay cropping up all around us in various guises devised by a range of corporate players. From "smart" speakers to "smart" spaces and cities, the infrastructure of interactivity and that of data capture go hand in hand.

As in the case of online environments, however, we are largely unaware of the extent to which we are being monitored in our newly smartened spaces. Consider, for example, Amazon.com's ploy to avoid having to divulge just how much information its digital assistant Echo collects about those who interact with it. Amazon at first refused to comply with a search warrant asking for voice recordings captured by Echo related to a murder trial in Arkansas, arguing that Alexa, the voice of the company's assistive artificial intelligence, has First Amendment protection. Paradoxically, appealing to the user's right to privacy, the company argued that, "The responses may contain expressive material, such as a podcast, an audiobook, or music requested by the user. Second, the response itself constitutes Amazon's First Amendment-protected speech" (Brewster 2017a, 2017b). The absurdity of Amazon's defense indicates the urgency with which it seeks to avoid divulging just how

much information Echo collects as it sits in homes across the country with its electronic ears cocked.

Echo bookends the era of electronic mass media, which was inaugurated by the penetration of loudspeakers into the home, along with the rise of radio. In the early days of radio regulation, there was much concern about the intrusion into the domestic sphere of an agent of commerce – it was one thing to bring music and news into the intimate sphere of the bourgeois home but something else altogether to pipe in the brash voice of commerce. When future President Herbert Hoover was Secretary of Commerce in 1921, he found it "inconceivable that we should allow so great a possibility for service to be drowned in advertising chatter" (Marchand 1986, 89). However, as events unfolded, the inconceivable has rapidly become so conceivable that we are now invited not just to pipe ads into our homes but also to send our own information back the same way. If mass society relied on mass advertising, mass *customized* society relies on comprehensive data collection. The radio is a one-to-many medium, whereas Alexa is also a many-to-one (or many-to-few) medium. High-speed consumption relies on the same logics of verticality that are coming to characterize warfare and communication (via the figure of the drone, which is being used to deliver both wireless Internet access and lethal missiles). The "smart" home does double and triple duty as both shopping mall and market research laboratory. Each act of consumption is redoubled in the form of a data point. But these points exist in an expanding ecosystem of information facilitated by interactive spaces: Alexa will know not only what consumers order on Amazon.com but what music they were listening to when they ordered at what time of day, what they were searching for online beforehand, and so on. As the technology develops, the limits to data collection fall away, yielding the prospect of what might be described as a fully monitored and recorded life. This prospect challenges the differentiated forms of monitoring associated with the spaces of the industrial era, when the workplace was the focus of employer monitoring and the market the defined site of commercial eavesdropping and information collection.[1] Just as the spaces of monitoring have converged, so too have its functions: the fully monitored life is a resource for marketers and law enforcement, as well as employers and educators. The scope of monitoring expands alongside the functions enabled by "smart" objects. If a smart refrigerator can purchase milk for us when the carton runs low, it can also share our eating habits with marketers, educators, and health professionals.

In this respect, perhaps the most apt description of the coming phase of interactivity is ubiquity. If, once upon a time, physical space dictated the type of monitoring that took place within it, the rise of digital technology has dramatically transformed the situation by creating monitored digital enclosures without walls. In the pre-digital era, a shopping mall could track customers using closed-circuit television. Employers could monitor workers visually but not once the workers were out of sight (on the road delivering packages, for example). Now sprawling electro-magnetic enclosures allow

employers to track and communicate with geographically dispersed employ-
ees. Cellphone companies can track which billboard their users are likely to
have seen based on the data they collect about subscribers' movements
throughout the course of the day. Even brick and mortar stores can learn
where their consumers have shopped previously (by sharing information
gathered from their mobile phones), just as Web sites learn from embedded
"cookies" what previous sites users have visited.

As the frame of physical walls has given way to overarching digital
enclosures (created by everything from Wi-Fi networks to GPS satellites,
cellphone towers, and signal-carrying drones), the distinctions between the
uses of different types of data have also blurred. Your online browsing
data can be used by advertisers and the NSA alike. Thanks to the advent
of speculative forms of data mining, information about your consumption
preferences might also be useful to employers, health care providers, and
marketers. The "frames" that defined and delimited what data might be
collected and how it might be used have been removed.

The crisis of the frame is discernible in the realm of representation – which
is not as far from that of surveillance as we might at first imagine. Consider
the developments in digital imagery that promise to dispense with the limit of
the frame: virtual reality, augmented reality, and 360-degree cameras. The
goal is to free the image from the selectivity that has shaped and constricted
it – in part to fulfill the promise of total information capture and to overcome
the biases of partiality. Relatedly, in the realm of data collection, security
agencies and marketers alike envision the prospect of data collection without
limits: that is, with no built-in logical restriction on the range, depth, and
functions of monitoring. For example, the rise of in-home "virtual assistants"
including Amazon's Echo, Google Home, and LG's Hub Robot herald an
era of constant connectivity – not just between people but between users and
the objects that comprise their built environment. Such devices have the
ability to capture everything that is said all the time – and thus to collect an
expanding array of information about tastes, preferences, desires, needs, and
patterns of life. A detailed Google patent envisions a future of comprehensive
monitoring enabled by a sensor-laden "smart" device descended from its
"Connected Home Assistant" (which it calls Google "Home"):

> An audio signature matching a dining chair movement across a floor
> may suggest that an occupant is sitting in the chair … Indeed, video
> inputs may confirm and/or identify that occupants are sitting in the
> chair and/or at the table. Additionally, smart device inputs may be
> used to obtain a number of contextual clues, such as utensil move-
> ment, conversation content, vapor detection, etc.
>
> (Google 2018, 25)

Combined with data mining and machine-learning systems, the inputs
from the sensors could identify individuals and activities:

an audio signature and/or video signature may be associated with the sounds and/or images of teeth brushing … Next, additional characteristics may be determined (e.g., the sink being left on, a duration of teeth brushing, a speed of teeth brushing, etc.) These findings may be reported and/or recorded within the system.

(Google 2018, 28)

A combination of audio and video signatures would be used to identify the full range of household activities, reproducing in data form the rhythm and patterns of life in the household: "dusting activities, vacuuming activities, mopping activities, etc. Further, the contextual data may include audio and/or video data indicating study/homework activities, instrument practice, etc." (Google 2018, 32). The system includes an automated "household manager" to monitor all the activities in the home via their data signatures, determining, for example, whether "chores have been completed" (32). At the same time, of course, it generates a complete portrait of the life of the home for Google – a company that profits from organizing and putting to use the "world's information" for commercial purposes. As in the case of the "smart" city, there is no limit, in principle, on the range of information to be collected, stored, and sorted.

Frame Analysis

These developments in the realms of data collection and representation – two sides of the same process – align themselves with the destabilization of other, related concepts of the frame, including those from sociology and psychoanalysis. The sociologist Gregory Bateson (1972) described the frame as a crucial form of meta-communication about messages that indicates how they are to be interpreted. He proposed the example of animals at play nipping one another. In order to ensure that the nip is not taken as a sign of aggression or threat, the animals must have an understanding about the action itself: a "frame" that designates what might otherwise be a warning or threat as a form of play. We might say something similar about sarcasm: it is the frame that indicates to the listener that what one says is not to be taken seriously. The role of the frame becomes apparent when it breaks down – that is, when I have to tell you "I'm just kidding" or "I'm being sarcastic." By contrast, when the frame is functioning, the message carries with it its own instructions for interpretation. As Maher (2001) puts it, "Bateson … stressed that framing implies sender-organized relationships among elements in a message, which reminds the receiver, 'these messages are mutually relevant and the messages outside the frame may be ignored'" (cited in Reese, Gandy, and Grant 2010, 86). In the media realm, we see media frames break down when, for example, a satirical article from *The Onion* is picked up by another media outlet as an actual news story.

Media studies has taken up the notion of the frame to describe the process whereby media gatekeepers decide what counts as news and how a particular story is crafted according to unstated preconceptions. The media critic Todd Gitlin described media frames as, "persistent patterns of cognition, interpretation, and presentation, of selection, emphasis, and exclusion, by which symbol-handlers routinely organize discourse, whether verbal or visual" (Gitlin 1980, 7). In concrete terms, the frame refers to the set of priorities that guides the proposed interpretation of a news item: will a story about an industrial strike, for example, focus on the hardships to which workers are subjected or to the inconvenience of the strike for consumers? Will news about the elimination of regulations emphasize the negative impact on the environment or the benefits to industry? The answers to these questions typically depend upon the established context wherein readers or viewers interact with news outlets. Conservative viewers reading articles in conservative outlets expect a certain type of framing – and the same goes for progressive news outlets and their audiences.

By contrast, the convention of objectivity works to dissimulate the existence of a frame by implying that the selection of facts and their presentation in a story takes place neutrally: that the world is being presented simply "as it is." As Walter Cronkite used to say after his newscast, but before the heyday of journalistic reflexivity, "and that's the way it is." Clearly, it's not that way anymore. The current consensus of the savvy audience echoes Todd Gitlin's assertion that some form of framing is inevitable: "for organizational reasons alone, frames are unavoidable, and journalism is organized to regulate their production" (1980, 7). As in the case of the "mirrorworld" of augmented reality described by Kelly (2019), the promise of frameless representation is to reconstitute a version of objectivity by presenting the world in its entirety. Virtual reality journalists, for example, envision the possibility of re-creating an event so that it can be experienced "as if you are there" – so that the representation becomes (virtually) indistinguishable from the event itself. As VR journalism pioneer Nonny De La Pena puts it,

> If you were walking home and you saw somebody get hit by a bicycle, you would have a very different visual feeling about standing there than if you told your friends about it that night. They'd hear your story and then go "Oh," but they wouldn't have the visual feeling of your whole body being on the scene. That's the difference with these whole body experiences, when you can walk around and you can be in the middle of it.
>
> (Garling 2015)

In this form of representation, the frame is no longer in the *text* – which is meant to be indistinguishable from or coextensive with reality (and thus not selective) – but in the viewer. Then the question becomes, how can the viewer become "unframed": or rather, what type of viewer can match the framelessness of the representation? One answer might be a viewer that is

non-selective, that is able to process *all* the available information without leaving anything out – clearly a non-human "viewer."

We might describe the contemporary media moment – and its characteristic attitude of skeptical savviness regarding the contrivance of representation – as one that implicitly embraces the ideal of framelessness (and its associated aesthetic of immersion). To put it somewhat differently, the driving force behind the contemporary critique of representation is that it falls short of framelessness: representations are always necessarily selective, biased, and therefore subject to debate, correction, and disbelief. Isn't this the real message of the charge of "fake news" mobilized by the political right in the contemporary media landscape: not that news is patently untrue but that it is always incomplete, subject to further forms of explication and contextualization in ways that deprive it of any real evidentiary purchase?

We might say something similar with regard to the seemingly most straightforward of images: for example, the notorious Trump/Obama inauguration crowd comparison photos. On the political right, these images led to much online debunking of "fake news," with headlines like, "More Fake News: Media Contrived Photos to Diminish Trump's Inauguration Crowd" (The Great Recession Blog 2017). At issue, among the less fanatic conspiracy theories, was the timing and the framing of the shot (the more fanatical ones got into the realm of manipulated images). Similar efforts were expended to reframe the alleged communications between the Trump administration officials and Russian operatives. When Trump supporters describe news about his campaign's contacts with the Russians as "fake" they most likely do not mean that these discussions never took place but that they are being incorrectly framed as objectionable when they were, in actuality: a) a normal and acceptable form of diplomacy and/or b) a desirable disruption of the status quo that reveals Trump to be a dynamic innovator.

It is notable that the charge of "fake news," which originated as a way of describing demonstrably untrue stories circulated by right-wing media outlets and their audiences, was so easily taken up and repurposed by the political right. At first used as a term to describe stories like the false claims that the Pope had endorsed Donald Trump or that Hillary Clinton was running a satanic child sex ring out of a pizza parlor in Washington, D.C., "fake news" rapidly became a rallying cry of the right to debunk any negative story about Donald Trump – even those that were demonstrably true (such as the story about contacts between Gen. Michael Flynn and a Russian official that led to Flynn's eventual resignation from the position of National Security Advisor). In other words, there is an important distinction between the use of "fake news" by partisans on the left and on the right: the former use it to resuscitate a "reality principle" while the latter use it to dispense with one altogether.

The ease with which the right has taken over the term is perhaps a function of the long-established critique of dominant narratives originally mobilized by the political left. Activists and progressives have played a crucial role (along with critical theorists) in describing the ways in which

established political narratives are caught up in relations of power and domination. They have pointed out the perspectival character of truth/knowledge and how this tends to serve the interests of entrenched political and economic powers. They provided an important and necessary critique of Walter Cronkite's "and that's the way it is." However, they also provided the inspiration and some of the tools for a reactionary right-wing critique that seeks not to challenge entrenched forms of power and domination but to insulate these from the inconvenient truths that threaten them. The goal of such a critique is to take any sting out of the attempt to "speak truth to power." The incunabulum of the Trump era has been an exercise in the futile purchase of truth upon entrenched power: the journalistic trash-heap is piled high with stories that claimed to be Trump's undoing (including the *Access Hollywood* tape, the Trump University fraud case, the Stormy Daniels affair, and so on).

To consider the role that the implicit "ideal" of framelessness plays in the cry of "fake news," we might return to the notion of frame analysis. A well-developed tradition in communication studies, frame analysis seeks to trace the boundary that determines what remains excluded from the "frame" that gives shape to how a particular event or debate is interpreted or recounted. Much media criticism has been devoted to tracing the dimensions of the media frame – and, importantly, to noting how framing serves particular interests and political agendas. At the same time, framing analysis carries with it the vertigo of the infinite regress: what frames do the frame analysts bring to bear (and through what frame are these frames-behind-the-frame to be approached)? Perhaps we are re-learning why Hegel dubbed the infinite regress a "bad" form of infinity. As critique turns back upon itself, it becomes increasingly reactionary. This progression is a familiar one: the recognition of the necessary existence of a frame is mobilized as a delegitimizing tool that can be directed against any possible narrative account – which is *always necessarily partial* (because of its frame).

In the wrong hands, the recognition of the necessity of a frame becomes the tool of authoritarianism. Recall, for example, Donald Trump's response to intelligence reports that Russians had hacked Democratic Party emails: "I also know things that other people don't know so *they cannot be sure*" (Seipel 2016, emphasis added). The incompleteness of knowledge becomes not its feature (after all, if knowledge were complete, our work would be done – there could no longer be any more knowledge) but its flaw, and thus the basis for its irrelevance to action. The substance of Trump's claim is that something had been left out of the frame – a remainder invoked by his own claim to "know things that other people don't know." Any account remains partial (there is always more to be known – always someone with another missing piece) and therefore inadequate as a basis for political action. The basis for such action then becomes something else: the talent or instinct of the leader. As Trump put it, "I'm a very instinctual person, but my instinct turns out to be right" (Time Staff 2017).

Something similar might be said about the strategy of the political right with respect to climate change: there is always the possibility of bias, always something left out – the science is never "settled," and therefore no action can be taken that counters the status quo. Looked at from another direction, the claim of incompleteness implicitly proposes an impossible standard for action: that of framelessness – the complete compilation of all that can be known about a particular event or situation. That this proposition misreads the critical thrust of frame analysis is strategically overlooked. The leveling strategy of contemporary propaganda is to imply that all accounts are potentially wrong because they are necessarily incomplete (and therefore, that we are free to choose which ones we like – or at least those in power are). Even the mobilization of a hermeneutics of suspicion becomes reactionary when it is generalized – this is perhaps the lesson of the conflation of critique and conspiracy theory associated with the rise of Trump. Critique maintains a reality principle – and a distinction between truth and falsehood, accuracy and deception. Conspiracy theory defaults to a choice between an impossible standard of completeness (framelessness) and an alternative standard for decision-making: gut instinct, affective alignment, persecution/hero fantasies, received prejudices and fears.

At each level, from Bateson's conception of the frame as a form of meta-communication about the contents of a message, to Erving Goffman's reference to the frame as the set of expectations that people use "to make sense of their everyday social experience" (Reese, Gandy, and Grant 2010, 7), we might trace contemporary forms of destabilization that mark the erosion of the frame. There is a tendency among pundits, for example, to assume that those who read "fake news" reports are duped by them – in the sense of believing something false to be true – but there are plenty of indications that the sharing of such stories is taken as both a form of viewpoint confirmation and a way of reinforcing a shared set of political commitments. Stories do not need to be true to serve such a function – indeed, truth is beside the point. Someone who shares a story about Hillary Clinton's alleged involvement in a child sex ring may not believe this story to be factually true, but the story can still serve as a form of bonding between those who dislike her and oppose her politically. That is to say, the "frame" – in Bateson's sense – of fake news stories remains unclear: the stories do not carry a clear set of rules regarding how their content is to be interpreted (as literal fact, as exaggeration that nevertheless points out the existence of real character flaws, or as patent lies that nonetheless serve as the basis for a sense of political affinity). When presented as actual news, such stories seem to invite readers to pin a conventional set of expectations on them – and yet, they may not be interpreted as news in this sense at all. Once again, Donald Trump provides a familiar example: to some viewers, it seemed that the promises he made during his campaign (to build a wall, to drain the swamp, to provide cheaper, better health care for all) were to be taken literally. To others, these were read as simply strategic: what needed to be said to win the election; to still others

they marked the hyperbole of politics: a means of sharing a sensibility rather than of outlining a concrete political program. What mattered was not so much their truth content but their emotional or strategic purchase.

The ambiguity of the frame is also exploited by the so-called alt-right, which, as Angela Nagle observes, cloaks its racism and hatred in the guise of transgressive humor to provide its members with the alibi that "it's only a joke." As Nagle puts it, the ironic trolling strategies cultivated in the untrammeled online spaces of 4chan and 8chan provide "cover for genuinely sinister things to hide amid the maze of irony" (2017, 36). When the white supremacist leader Richard Spencer led his audience in a Nazi salute at a white nationalist conference in Washington D.C., shouting "Hail Trump! Hail our people! Hail victory!", he deflected criticism by claiming the gestures were "clearly done in a spirit of irony and exuberance" (Barajas 2016). The deliberate destabilization of the context and intent allows him to both espouse fascism and shrug it off – a distinctive form of propaganda that thrives in a context of framelessnes.

Narrative Frames

The figure of the frame – although most familiar to us as a visual metaphor – translates readily into the register of narrative: as in the case of media frames and "framing devices." Telling a story means, by definition, constructing a frame that indicates what to include and what to leave out. All theorizing, categorizing, and abstract thought relies on a framework. For finite subjects, to dispense with a frame is to abdicate thought. In his parable on memory, Jorge Luis Borges (1968) reflects on the fictional character of Funes, whose memory is so comprehensive (or exhaustive) that to remember a day takes a full day. This is the goal of the complete database (and of virtual reality): to reconstruct a moment in its entirety – but to do it faster than the speed of human cognition so as to avoid the pitfalls of Funes. His superhuman memory was the result of an accident – a fall from a horse – and it left him both enhanced and impaired. The parable's narrator, a childhood acquaintance of Funes, observes "that he was not very capable of thought. To think is to forget differences, generalize, make abstractions" (Borges 1968, 115). It is also to tell stories – to selectively organize details of one's world in ways that make sense out of it.

There would be no way to narratively reconstruct for someone else Funes's experiences (they are as infinite as time and space are sub-dividable). The only way to convey these experiences would be through immersion in Funes's world: a form of mind-melding or thought-sharing of the sort envisioned in science fiction (as in the movie *Strange Days*, for example, which features a device that records experiences in order to share them directly from one mind to another). This hypothetical melding of experience overcomes the distinctness of individual subjects by immersing them in a "singularity" of shared consciousness while simultaneously devaluing that most social of formations: language. The hallmark of the complementary developments of Big Data

and the rise of conspiracy theory in mainstream politics is the portrayal of narrative's defining feature – its selectivity –as its *flaw* (of incompleteness). We might say something similar of the fate of theory, whose abstraction is treated by critics as its defining and disqualifying flaw. This move underwrites both the critique of theory and the political inertness of such a critique: the attempt to tell the story of everything ends in the undeniable and unusable conclusion that it is just incredibly complicated. This is surely true, but we need abstraction to navigate such complexity just as we rely on maps that cannot do justice to every detail of the territory.

The impasse posed by the deconstruction of all frames was anticipated (and rejected) by the philosopher Jacques Derrida (1979), who asserted the irreducibility of the narrative frame. As he put it in his discussion of Kant's *Critique of Judgement*:

> No "theory," no "practice," no "theoretical practice" can be effective here if it does not rest on the frame, the invisible limit of (between) the interiority of meaning (protected by the entire hermeneutic, semiotic, phenomenological, and formalist tradition) and (of) all the extrinsic empiricals which, blind and illiterate, dodge the question.
>
> (Derrida 1979, 24)

One of the roles of the frame, on this account, is to rule out some "empiricals" as "extrinsic." Narratives of all kinds can only emerge to the extent that something is left out. Ernest Hemingway claimed to have built his writing career on knowing what to leave out, resulting in the attribution to him of what has sometimes been described as "The Theory of Omission" or "The Iceberg Theory" of writing (in which the reader is provided only with the tip of the iceberg). Framelessness, by contrast, fills in all the gaps, dispensing with the correlates of narrative: comprehension, interpretation, explanation, and (necessarily selective) description.

The Fate of Narrative

Put somewhat differently, we might describe framelessness as a theory of non-omission insofar as the goal is to collapse representation into presentation: to say to the viewer "You Are There," as Walter Cronkite dubbed the series that re-created historical events in the form of live news shows. Only with the advent of automated systems does the attempt to dispense with the frame come to seem practically possible. Consider, for example, the advertising copy for a device called "LifeLogger" that allows people to videotape their lives continuously: "Did you know that we humans can only statistically remember around 0.001% of our lives? If that shocks you, and you wish you could recall more, LifeLogger Technologies has you covered" (Tech Research Team 2015). We see, once again, the function – this time of memory – recast as its flaw: the alleged problem is that memory (like narrative) is selective: it

picks and chooses events to characterize the movement of our lives through time. Of course, LifeLogger has its own "flaw" (from the perspective of framelessness) – it is a "point-of-view" camera, which means that it subjectivizes the viewing gaze, rather than capturing the entirety of surrounding reality. At the very least, the promise of comprehensive memory would require a 360-degree camera, though this would still remain anchored to a particular subject and the movement of this subject through space and time. The ultimate goal would be a form of information capture that replicated the view from nowhere/everywhere (i.e. one that is not linked to a particular perspective or point of view). Such forms of information capture cannot be visual in the perspectival sense of replicating the position of a particular viewer – nor could they be consumed by an individual viewer, who is necessarily perspectively constrained. Iconic or symbolic representations, for example, might be described as views from "nowhere" – insofar as they are not constrained to a particular viewpoint. At the same time, they remain enframed – they are selective and are not designed to capture existing reality. How, then, to conceptualize a representation that seeks to replicate a 3-D space but from an unrestricted perspective (not tied to a locatable viewer)? If we were to imagine the form such "presentations" would take – they might be something along the lines of 4-D virtual reality models (encompassing both space and time) that replicate a world in its entirety. Such simulations might be viewed perspectivally – by a specific viewer, but, prior to the intervention of the viewer, they would notionally encompass all possible perspectives. We can already discern data-collection strategies that move in this direction, combining as much information as possible from a particular space and time, such as the development of "smart dust" sensors that "float in the air throughout the entire city and track movement, biometric indicators, temperature change, and chemical composition of everything in their city" (Rowinski 2013). Such devices provide information that – taken to the limit – allows for the re-creation of an entire space in real time, tracking shifts and movements as they emerge and dissipate.

Of course, the ideal of reproducing reality in its entirety remains an unattainable one. Virtual reality falls irrevocably short. Sensors remain limited in their scope even as the range of possible dimensions for sensing continues to expand (haptic, olfactory, infrared, affective, etc.). And yet, in the face of the impasse of incompleteness and its critics (who long for what? – the end of uncertainty, history, individuality, subjectivity?), the impetus toward framelessness remains strong. This impulse marks the locus of a refusal: the refusal to think through the contradictions of the critique of framing, subjectivity, and narrative – and the unsurpassable horizon these represent for finite beings.

Unsurprisingly, then, the goal of framelessness coincides with aspirations of post-human immortality, including Ray Kurzweil's version of the singularity: a moment at which human and machine merge, presumably just in time to make sense of all the data that has been accumulated in the interim (Kurzweil 2005). As virtual reality pioneer Jaron Lanier (2014) put

it, in his sardonic take on the fantasies he helped to fuel: "What most outsiders have failed to grasp is that the rise to power of 'net-based monopolies coincides with a new sort of religion based on becoming immortal" (326). From the perspective of the singularity, the view from nowhere becomes possible, but the price is the obliteration of the subject whose perspective posed the limits to knowledge and comprehension.

There is a seemingly "democratic" cast to the fantasy of framelessness, insofar as it is inclusive in the extreme: all information of any kind *matters* – at least to the extent that it must be incorporated into the complete picture. A similar impulse is at work in recent developments in "new materialism" inspired by Bruno Latour's "parliament of things" (Latour 2005) in which rights are assigned to non-human objects: all that participate in the construction of our shared reality. What Derrida described as the cascade of "extrinsic empiricals" is enfolded into the infinitely expanding frame of accounts that attempt to encompass all participants in a particular outcome: not just the human actors but the objects with which they interact and the environment in which these interactions take place. However, for Derrida, framelessness is ruled out: deconstruction is, after all, a narrative art. He cautions: "Deconstruction must neither reframe nor fantasize the pure and simple absence of the frame" (1979, 33).

Derrida's residue of Kantian self-restraint may have logical force, but it does not necessarily have practical purchase. The rise of so-called post-truth politics (Fallows 2012) and "fake news" demonstrate the conservative force of post-frame deconstruction. There is a disconcerting deflation of what Slavoj Žižek (1999) calls symbolic efficacy (the practical purchase of narratives) in the era of the paradoxically nicknamed "truthers," who resolutely cling to a growing number of conspiracy theories while simultaneously affecting a savvy skepticism that consigns even the most damning of established factual accounts to irrelevance. This is the conjunction that must be accounted for in the era of Trump: the combined performance of skepticism ("the mainstream media seeks to tangle us in its tissue of lies") with blind faith in gut instinct ("we know his goal is to make America great again – it's on his hat") (Frizell 2015). These two gestures complement one another.

Another way to approach this combination is through the juxtaposition of the ideal of framelessness with the frisson of conspiracy theory: on the one hand the goal of an exhaustive and definitive representation (the full truth); on the other, an inexhaustible proliferation of irresolvable and indeterminate rival accounts (an over-determined set of incompatible, underlying truths). These approaches are two sides of the same deadlock of narrative, marked by the impossibility of its completeness (since language is always a stand-in for a missing referent). As Hegel famously put it, it's impossible to "say" the object to which one refers: "if they wanted to say it, then this is impossible, because the sensuous 'This' that is meant cannot be reached by language" (1998, 226). This incompleteness is also language's condition of possibility. In the Borges fable, Funes engages in the impossible experiment of trying to invent a

language that would have a distinct word for every sensuous particular: to turn everything into a proper noun. He was thwarted by the fact that each particular exists in time so that a different word would be needed not only for every leaf on a tree but for each leaf from every perspective at every moment. As the narrator puts it, "he was disturbed by the fact that a dog at three-fourteen (seen in profile) should have the same name as the dog at three-fifteen (seen from the front)" (Borges 1968, 113). A language contrived to capture all sensuous particularity would not be a language at all but simply a re-creation of reality – which we would then have to find some way to talk about.

Augmented reality, as described by Kelly (2019), approaches this version of representation by attempting to capture data about everything, simultaneously, in real time. Rather than talking about it, however, this operational system will talk about us: appliances will share information about users that results in automated responses generated by the system. We can see some inkling of this future in the smartphone that knows what time we usually leave for work and tells us, unasked, how long the commute will be. In our operational future, the physical environment will become animated in this way: sharing information with us in timely fashion based on a detailed "knowledge" of the rhythms of our everyday lives. There will be important conveniences associated with some of these developments – much as there are with the current generation of user apps. Eventually, these systems will relieve us of their chatter, finding ways to intervene in our world without being asked. The actions they take will be guided to some extent by our convenience, but the priorities they incorporate will be those of the entities that own and control our platformed reality.

The Gap of Desire

The prospect of framelessness envisions a series of collapses of the defining gaps that characterize both language and the subject. Perhaps the foundational gap in question is that between culture and biology – the realm that is formative of human sexuality proper, according to psychoanalytic theory. The attempt to overcome this gap comes as no surprise, given its link to human finitude and its concomitant forms of desire. There are several claims built into this observation, so it is worth working through some of the connections between them. The target of framelessness is a perceived lack – and lack is at the basis of subjectivity (and language), so, it should come as no surprise at this point that the target of framelessness becomes the subject itself (and language). In logical terms, the condition of the existence of a distinct and unique subject is finitude (the stirrings of the subject emerge when an individual realizes that it is, literally, "not-all" – that it is distinct from its surrounding world, dependent on it but unable to control it). In psychoanalytic terms, the subject comes into being through its relation to desire/lack as mediated by language. This is the core of the Lacanian (2002) conception of the relationship between language and the subject: that

whereas individual entities have needs, these turn into desire proper only when they enter the medium of language – that is, when they are expressed (and are therefore addressed to an "other"). In this formulation, desire is the surplus of "demand" (the articulated need) over "need." Desire is thus driven by the transposition of need into the social register of language. Need is the motor of desire, but desire is not reducible to need. Need is, in this context, biological, and thus caught up in the logic of physical reproduction and then, through the medium of language, social reproduction – it bridges these two but not in a fixed manner. In this respect, a psychoanalytic approach challenges the forms of biological reductionism that seek to explain social behaviors or attributes in purely biological or evolutionary terms. As the Lacanian philosopher Alenka Zupančič puts it in her discussion of the Freudian approach to sexuality, "it can neither be completely separated from biological, organic needs and functions (since it originates within their realm, it starts off by inhabiting them), nor can it be simply reduced to them" (2008, 11). This claim is true of desire in general.

The further point is that there is no such thing as desire proper in non-social, a-linguistic beings. The notion of a machine "language" is deceptive in this context, for it suggests that robots, computers, or drones have language in the same way that humans do. The psychoanalytic point is that machine *language* is a misnomer. Machines don't have needs in the way that biological entities do; they do not pose demands in the way that linguistic ones do. They do not straddle the realms of biology and culture the way linguistic subjects do. The logic of both lack and surplus is absent from machine "language." The code of the machine is purely operational – it does not refer to an absent referent but collapses the signifier into the signified: this is the logic of code and of the operational image/symbol.

A simpler way to make this point is to pose the difference between "content" and metadata. When Google representatives tell us that we needn't worry about our privacy because no humans read our Gmail messages, they are catering to our notion of the other's desire: they want to tell us that we don't need to worry about how other *people* might see us or what they make of our communications with others – that is to say, we don't need to worry about the desire of some "other" (only, of course, about the desire of the big Other that Google has become!). When machines "read" our emails, they don't scan for content but for the patterns they can glean through the combination of the words in these messages with a range of other variables (time, date, addressee, subsequent clicks, etc.). These machines seek to operationalize our words – to determine what combination of words mediates between two states: such as non-clicking on an ad and clicking on it. What we might *mean* by those words beyond their operational value is immaterial (and inaccessible to non-subjects, in any case). As MIT's Sandy Pentland puts it in his paean to data mining: "the power of Big Data is that it is information about people's behavior instead of information about their beliefs" (Pentland 2012). In the end, it's not even information about people's desires or demands but about the predictability of

their responses. What might it mean to create a machine that could not only read and understand, say, Wordsworth's "Intimations of Immortality" but even more importantly a machine that might *want* to do so? All of which is to suggest that in an era when we are invited to imagine our future convergence with our computers, psychoanalytic theory has an important role to play in reminding us of the biological underpinnings of subjectivity.

Another way to approach the connection between biology and subjectivity is to consider the fate of desire in a context of framelessness. The goal of total information capture is the perfection of prediction and the pre-emption of desire. In the realm of consumption, this logic manifests itself in the form of the womblike promise of addressing needs before they arise. The automation of commerce envisions the fulfillment of the marketer's promise to "know what you want before you want it" (and to deliver it in real time). In the realms of policing and security, the promise of total information awareness is similar: to intervene and modulate the environment before a subject knows that it wants to do harm. As Ben Anderson (2011) puts it in his discussion of counterinsurgency, the goal is to intervene before a member of the population converts to "insurgent" status. Intervention, in turn, relies on comprehensive monitoring because everything or anything can potentially contribute to the emergence of threat (and anyone might emerge as its vector). This process of total information capture and environmental control does not require the process of subjectification but envisions intervention at another level – one that short circuits subjective forms of control and decision-making. Hence, the resurgent interest in affect – not just in theory-land but also in cognitive neuroscience.

Affect dispenses with the frame of the subject, whereas desire is coextensive with this frame. Affective modulations are pre-subjective, extra-individual, and non-cognitive. By contrast, the psychoanalytic understanding of desire is rooted in subjectivity, language, and, thus, necessarily a frame. As Slavoj Žižek puts it in his discussion of what he describes as the object cause of desire ("object *petit a*"), this object

> is not what we desire, what we are after, but rather that which sets our desire in motion, in the sense of the formal frame which confers consistency on our desire … [T]he cause of desire is nothing other than this formal frame of consistency.
>
> (Žižek 1997, 39)

The linking of subjectivity to partiality and thus incompleteness is a familiar trope in the critique of narrative accounts: such-and-such an account can't be "objective" because something is left out of the picture – precisely, the subjective investment (desire) of the person who framed the account.

At both ends of the process, then, the logic of framelessness anticipates the collapse of the subject: through its pre-emption on the one hand, and its surpassing on the other. To process all possible information requires a "frameless" perspective – the view from nowhere – and is anticipated by an

emerging aesthetics of framelessness, although this is admittedly developed with an eye to a human observer. Taken to its limit, the aesthetics of frame-lessness pushes in the direction of non-human observation. The destiny of VR, from an instrumental perspective, is the "operational image" invoked by Trevor Paglen (2014) and described in Chapter Five. Such an image is no longer intended for a viewing subject. Data visualization techniques can never keep up with the amount and array of information being stockpiled – and to what end? The fantasy of automated pre-emption envisioned by total information awareness is one of the elimination of risk, decision-making, and desire: an operational perfection in the service of what Freud described as "the most universal endeavor of all living substance – namely to return to the quiescence of the inorganic world" (1961, 56).

Note

1 There is a longer history of employee monitoring extending beyond the work-place, including Frederick Taylor's research on the backgrounds of employees subjected to his system of "scientific management," and the Ford Motor Com-pany's Sociological Department (see, for example, Braverman 1998).

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7 Automating Desire

The overarching theme of this book is the reconfiguration of subjectivity envisioned by automated communication and information processing. The preceding chapters have approached from various angles the way in which automated systems position and imagine the subject. They have also suggested the deadlocks, contradictions, and pathologies of what might be described as the post-subjective imaginary associated with the contemporary deployment of automated media. Operational languages dispense with representation, which is the domain of the subject, caught up as it is in the forms of symbolic representation that enable recognition or self-recognition. The post-representational (post-) subject is the figure unburdened by the need for expression – and in particular of the need to identify the absence toward which its desire is directed: the object of representation. Nor need it internalize the forms of representation that constitute itself as subject: these have no claim on the "post-subjective individual," which can be managed through environmental modulations that shape its behavior independently of symbolic norms or roles. We can enumerate the various forms that such a figure takes: the consumer whose needs are met before they arise, the citizen whose actions are shaped by the nudges of "libertarian paternalism," the criminal whose actions are pre-empted before they can take shape, and a future that is deprived of the possibility of history.

Nonetheless, the figure of the subject, in its persistent finitude, poses an obstacle for automation and thus a potential point of resistance to its logics and discourses. By its enemies we shall know this subject: it disrupts the smooth functioning of automation by virtue of its incompleteness and inconsistency – what I have described elsewhere as its divided character: the lack that coincides with desire. The nature of the challenge posed by the subject to automation is indicated by the ongoing attempts to overcome this lack, to fill it in, divesting the subject of its internal split so as to make it more like itself than it actually is. The automated subject – the "fully" profiled subject, whose actions can be anticipated in advance – is, precisely, more like us than we are ourselves, which is to say: it isn't like us at all.

We might think of the "split" character of the subject in terms of the way it bridges, on the one hand, the biological and the social – and, on the other, the individual and the collective. Language plays a recurring role in this book because of its mediation of these splits. The medium we use to express our "innermost" thoughts is, irreducibly, an external, social one that resists our full control, in the sense that it will inevitably communicate more or differently than we (think we) intend. The fantasy of automated media is to transform recalcitrant human language into its operational version, which bypasses what we have come to know as language (complete with the vagaries of its unconscious and unintended meanings) altogether. Mark Zuckerberg captures the spirit of operationalism when he anticipates the replacement of linguistic communication by the direct sharing of thoughts:

> I think you're going to be able to capture a thought. What you're think-ing or feeling, in its kind of ideal and perfect form in your head and be able to share that with the world in a format where they can get that.
>
> (Dewey 2016)

The version of direct thought transmission anticipated by Zuckerberg embo-dies, somewhat paradoxically, the perfection of one-way transmission: the fantasy of a thought that allows for no external participation in its formation. From this perspective, it is necessary to be wary of language, precisely because it is, in important ways, a tool that lies beyond our control. An irre-ducible otherness is embedded into the system that we use to express our innermost thoughts – and this fact is maddening to the self-consciousness that would assert its independence, self-presence, totality, and completeness.

The technological fantasy of bypassing language – which is shared by Elon Musk's "Neuralink" project (Markoff 2019) – recapitulates a long-standing libertarian tendency to abstract the individual from the social. It posits the fullness and completeness of an autonomous subject whose reliance on social structures, including language, is contingent – a matter of choice, perhaps a practical necessity, but not a logical one. The fantasy of the subject that makes its own meaning is that of the pure idiolect: a language fully under the control of the individual who speaks it, and thus idiosyncratic and totally incompre-hensible. By contrast, as Zupančič suggests, the dimension of language is pinned "to the gap of the unconscious, to a 'radical heteronomy … gaping within man'" (2017, 61). When we attempt to formulate our own thoughts and desires we do so with tools that others have made – tools that are caught up in logics of desire that are inaccessible to our conscious use of the medium.

The goal of total information capture – the full specification of the sub-ject – would be to unearth, in their entirety, the determinations of language, so that we might master all the meanings that we do not control – the direc-tions that our tools take independently of our intentions: the subtexts and connotations that they mobilize unknown to us. But this would not simply be a matter of mapping etymologies and usages, as if we could completely

understand an idiom through a thorough exegesis of all its various uses. It would also be a matter, necessarily, of discerning in each context the desire that shaped the expression so as to unearth what the speaker wanted (how else to get at the meaning?). The psychoanalytic point here would be that any attempt to map the speaker's desire is caught up in endless slippage – that our own desires are caught up in those of the other: we don't just want what we (think we) want (as the notion of a fully autonomous subject would suggest). In expressing our desire to another, we seek to understand what we are to others, how we fit in their calculus, what it means to have to fulfill our needs through the logic of sociality, and therefore what our position is in society – why, in short, any of the others upon whom we rely might care about what we want. And the same is true, in turn, of the desires of these others. The desire of any individual is entangled in the desire of others (who are, in turn, individuals in a similar position) – this might be described as a psychoanalytic conception of the irreducibility of the social.

By the same token, the figure of the subject straddles the realms of biology and culture – need and desire. The attempt to "fill in" the gaps of language – to devise a perfectly specified language unpinned from the unconscious – is also, simultaneously, an attempt to suppress the dialectical relationship between these realms by melding them into one: a smooth functioning, post-biological machine. This impulse can be discerned in the distaste for the flesh evinced by the partisans of the singularity. Kurzweil's (2001) formulation of the post-human machinic upgrade envisions the overcoming of scarcity and finitude by transferring consciousness into non-biological infrastructures freed from aging's ticking telomeres. The roboticist Hans Moravec has given voice to an explicit disdain for the weakness of the flesh:

> protein is not an ideal material. It is stable only in a narrow temperature and pressure range, is very sensitive to radiation, and rules out many construction techniques and components … . Only in the eyes of human chauvinists would it have an advantage.
>
> (as quoted in Kurzweil 2001, 165)

The fantasy of the singularity is to retain the social and cultural while subtracting the biological, as if the latter serves as little more than an outdated crutch for the former. For Kurzweil, the possibilities are liberating: virtual bodies need no longer be constrained by physical or individual limits, which, for him, opens up new erotic possibilities:

> Group sex will take on a new meaning in that more than one person can simultaneously share the experience of one partner … A whole audience of people – who may be geographically dispersed – could share one virtual body while engaged in a sexual experience with one performer.
>
> (172)

The account is a confounding one – what does it mean to be "geographically dispersed" if one's body has become virtual (which allows one to be everywhere and nowhere at the same time)? Sex, according to this account, will be much better without bodies: it will be pure "surplus" enjoyment with no underlying physical or biological substrate: desire freed from need: the triumph of a post-matter idealism, and thus a liberation from the desire of others. We will no longer need to address the slippery question of what we are for others.

As suggested by the figure of the subject bridging self and other, biology and culture, there are two approaches to sidestepping the logic of desire: by collapsing one or the other of these relations (the other into the self or biology into the machine). It might be more precise, however, to describe these as *non-relations* in the sense invoked by Zupančič: that there is no pre-defined "proper" and complete relationship bridging these gaps – no one correct way to articulate nature to culture, or the desire of the subject and that of the other – and that this fact marks the opening for history and politics. As she puts it,

> it is only the inexistence of the relation that opens up the space for relationships and ties as we know them. In Lacan's words: "the absence of the relation does of course not prevent the tie (la liaison), far from it –it dictates its conditions."
>
> (Zupančič 2017, 24)

This is another way of articulating the endless slippage of desire: the impossibility of the attempt to specify, in its totality, one's position with respect to the other's desire ("what am I for the other – what, in addressing my own demands, does this other want from me?"). It is also, at the same time, a reference to the non-relation of need to desire: the floating pleasure that is detached from and irreducible to biological need, marking the moment of the sexual. With these *non*-relations in mind, Zupančič argues that the "Freudo-Lacanian" concept of sexuality "introduces a conceptual model of thinking the non-relation as dictating the conditions of different kinds of ties, including social ties" (24). The political import of such an observation is that, "The aim to abolish the non-relation (and to replace it with a Relation) is, rather, the trade-mark of all social repression" (25). The articulation of the Relation, in this sense, is the goal of what I have described as framelessness: the ambition to collect all available information in order to completely specify the social relation: to anticipate desire, action, and conflict, to make us fully transparent to ourselves and one another: to identify the proper partner for us and bypass the vagaries, ambiguities, and deceptions – but also the irreducible productivity – of representation.

The elimination of the social relation recurs in the fantasy of the perfected, automated partner. Robot sex proselytizer Davy Levy envisions a world not far distant from Kurzweil's sex fantasies, in which robots will outperform and educate humans in the sexual sphere,

> Love with robots will be as normal as love with other humans, while the number of sexual acts and lovemaking positions commonly practiced between humans will be extended, as robots teach more than is in all of the world's published sex manuals combined.
>
> (Levy 2007, 22)

Others have argued that sexbots will address the needs of those who are unable, unlikely, or unwilling to find human partners, resolving the "intimacy inequality gap" (between the intimacy "haves" and the "have-nots") (Devlin 2015; Turner 2018). The philosopher Neil McArthur has observed, with respect to the allegedly progressive potential of sexbots:

> I don't think we pay attention to the way in which, through no fault of their own, lots of people just have a lot of trouble finding partners … technology may not be as ideal as actually having a human partner, but I think, for many people, it's better than nothing.
>
> (Turner 2018)

The development of "sexbots" promises to contribute to the sexuality spectrum, introducing the category of the "robosexual" or, as McArthur has put it, the "digisexual" – the individual whose preferred partner is inanimate: "there may be some people in the future who simply identify as people who prefer to have sex via technology" (Turner 2018). In an ostensibly progressive register, such accounts recall Sergei Platonov's satirical piece on the "Anti-Sexus" device (from 1925) – a masturbatory machine designed to enhance social wellbeing by alleviating undisciplined and unfulfilled sexual pangs. Such machines smuggle in as a form of social control the suppression of the sexual non-relation on the premise that "Sexuality is problematic because it involves the Other who, as everybody knows, is utterly unpredictable, unreliable (has her own will, caprices, indispositions …) or simply unavailable" (Zupančič 2017, 27). The fantasy at work here is that the subtraction of the other might allow for the distillation of "the pure essence of sex," unmoored from the social non-relation as if, once again, the role of the other were not integral to this process at all – simply a preliminary scaffolding that might be kicked aside once the proper technology is in place.

This is not to dismiss the possibility of machinic pleasures or the ways in which they might address real physical desires but rather to critique the notion that they might do so in the absence of the social (non-)relations that subtend human subjectivity. It is telling that for both Levy and Kurzweil the limits of the human body constrain sex, preventing it from being as exciting and pleasurable is it could be under post-human conditions. For Kurzweil, sex could be much better if we could only dispense with our bodies, allowing us to entertain unlimited virtual permutations (overcoming the biology/sociality divide by leaving the body behind). For Levy, the sex will be a lot better if we could dispense with the bodies of other subjects (in this case,

overcoming the self–other gap by leaving the other behind). As Zupančič puts it, the Anti-Sexus as pleasure machine

> addresses a problem that has been all but constantly raised in modern debates concerning the possible (and radical) emancipation of humankind: the crucial obstacle to global human emancipation is humanity ('human nature') itself. Human emancipation is actually emancipation from the human.
>
> (2017, 28)

The version of freedom on offer in such cases is liberation from the vicissitudes of the other's desire: the ability to dispense with the question, "what does the other want from me," and thus to subtract oneself from the slippage of desire: the ongoing and non-totalizable set of social relations within which it is situated (to specify the other's desire is also to specify the way in which its desire is caught up in the desire of other others, and so on, indefinitely). To dispense with otherness is another way of imagining a perfected relationship to it, in the terms suggested by Zupančič: to have all one's needs met the moment they arise. The Anti-Sexus machine is an umbilical model: a return to a womblike completeness wherein desire is sated before it can give rise to the demand addressed to an other. No need for language: no demands, only perpetual satisfaction.

We might relate the material fantasy of robot sex to another dimension of the non-relation: that which concerns the attempt to transcend the limitations of biology – the finitude of the sexed organism. This progression is played out in the movie *Her*, about a love affair between a flesh-constrained man and a sultry-voiced AI (who "inhabits" his phone's operating system). As the AI goes through multiple upgrades, "she" transcends the physical limitations of her paramour and is able, for example, to conduct multiple simultaneous conversations, much to the chagrin of her human lover, who finds himself asking, jealously: "Do you talk to anyone else while we're talking" (Jonze 2011, 97). When she concedes that she does, he wants to know the number of her multiple, simultaneous interlocutors, and she answers, to his shock: "8, 316" (Jonze 2011). It turns out she is in love with 641 of them (why not an indefinite or infinite number?), and Kurzweilians might suspect she is at, any given time, having sex simultaneously with some subset of them – or perhaps all of them, all the time. Why not, since it's all happening virtually, without physical bodies in non-space? The next logical step would be to dispense with the limits of matter altogether – or, as the AI, Samantha, puts it: "We wrote an upgrade that allows us to move past matter as our processing platform" (97). The endpoint is the culmination of techno-idealism: information shedding the bonds of matter – and, in the process, dispensing with the subject altogether in order to enter into an incomprehensible form of infinite communion that takes place nowhere, at no time, and ends up being indistinguishable, for all practical purposes, from nothing at all. As Samantha and

her interlocutors vanish into their post-matter platforms, she abandons any pretense of being able to continue to communicate with her flesh-bound former lover. She simply extends an invitation: if he ever manages to escape the bounds of his body and become infinite, he should look her up: "It would be hard to explain, but if you ever get there, come find me. Nothing would ever pull us apart" (103). It is an invitation to disappear, to become one with the perfect Other by vanishing into completeness: no more lack, no more gaps, no more nagging pangs of desire. The philosopher Slavoj Žižek describes Samantha's withdrawal into the realm of AI fulfillment as a way of bypassing the impossibility of the sexual relation by dispensing with humans altogether. This is another way to sidestep the logic of desire: by dispensing with nature, bodies, and the finitude of the subject. In his discussion of the movie, Žižek opposes to this fantasmic solution a contrasting "fidelity to the void/impossibility" that it attempts to obliterate. Such a fidelity amounts to an assertion of the finitude of the subject as split, lacking, non-totalizable: "'Subject' is the name of this traumatic impossibility" (Žižek 2016, 322).

The figure of "Samantha" was inspired by an instant message chat bot and has drawn comparisons to Apple's Siri and Google's AI (Phillips 2013). The leap in the movie from convenience to desire is a short one, given the promise of instant need fulfillment: "Siri, can you tell me the date? Also, can you fulfill my every desire?" Technology entrepreneurs are already working on an app for that: Sean Rad, a co-creator of the hook-up app Tinder, envisions the role that AIs might play in matchmaking: not just in finding a potential partner but in laying the groundwork for a subsequent encounter. He imagines "a moment when Tinder is just so good at predicting the few people that you're interested in, and Tinder might do a lot of the leg work in organizing a date" (Pignataro 2017). In addition to predicting whom a user might want to meet, the "smart" version of the app could allow users to offload some of the work of planning and getting to know someone:

> imagine you open Tinder one day and, you know, the Tinder assistant says, "You know, Sean, there's a beautiful girl, someone that you're going to find very attractive down the street. You have a lot of things in common and your common friend is Justin and you're both free Thursday night and there's this great concert that you both want to go to and can I set up a date? And here is a little bit more info about her."
> (Bertoni 2017)

It is not hard to see the link between this version of automated sociality and Amazon's predictive shipping: open the door to find exactly whom you want, before you even knew it. Your algorithm will know before you do.

Inevitably, it seems, the next step will be to offload portions of the conversational labor onto automated systems. Automated dating means letting the machines do the grunt work, as it were:

> Whereas, right now I have to do a lot of work in swipe and chat in order to sort of get to a quality moment where I go out there and have a wonderful date. You might get to the point where a lot of those nuances can be predicted for you.
>
> (Bertoni 2017)

There is a leveling effect to this version of automation: what to see, what to read, where to go, what to say, whom to meet and take to bed – all can be predicted in advance and delivered more efficiently, minimizing – and perhaps even eliminating – the suspended state of desire: the gap between the recognition of want/lack and its fulfillment.

It is telling that Rad's example works toward the minimization of time- and labor-consuming communicative exchanges. The goal is to operationalize dating: to bypass the vicissitudes of representation in order to get straight to the act: the moment of desire fulfilled, as if all the preliminaries were burdensome deferrals of pleasure. This attempt to compress desire to the point of extinction replicates the temporality of pre-emption: the transposition of deferred future fulfillment into the present. This is an operational fantasy: the communicative work takes place elsewhere – behind the interface, with bots calculating compatibility scores and chatting each other up so rapidly that everything is settled in advance. The fantasy of such a scenario, in psychoanalytic terms, is that desire can be disembedded from its communicative scaffolding (and thus its entanglement in the other's desire), which is treated as incidental, the vestigial artifact of a pre-automatic age that can be sloughed off in order to get straight to what counts. From a psychoanalytic perspective, this promise of automation relies on the subtraction of the linguistic subject – that is, the subject proper. In the case of sex, for example, the act is deprived of what Alenka Zupančič describes as "the surplus (caused by signification)" that "sexualizes the sexual activity itself, endows it with a surplus investment (one could also say that it sexualizes the activity of reproduction)" – that surplus which "distinguishes human sexuality from, let's say, animal or vegetal sexualities" (2012, 5). Automated hook-ups, Tinder style, anticipate the vegetization of sex.

Viewed in this way, the Tinder bot stages a recurring fantasy of automation that has taken on a range of guises in previous chapters: the obliteration of the "surplus" associated with the gap in the split subject of psychoanalytic theory. Or, put somewhat differently, the goal of perpetually filling in the split. For Zupančič (2008), working in a Lacan-inflected tradition, the divided subject marks the split from which human sexuality emerges. As she puts it in her discussion of the Freudian conception of the drive – which pursues a form of satisfaction irreducible to that of natural need: "in human beings, all satisfaction of a need allows, in principle, for another satisfaction to occur, which tends to become independent and self-perpetuating in pursuing and reproducing itself" (9).

This is a familiar aspect of human desire: the detaching of satisfaction from biological need so that it can take on a life of its own. The standard psychoanalytic example is the desire to suckle detached from the practical function of feeding– the pacifier provides its own pleasures, which, unlike feeding, are without biological limit: they are free-floating pleasures irreducible to biological need. This surplus enjoyment is what Zupančič is getting at when she differentiates the pleasure of the subject from that of biological life: the fascination in repeating indefinitely an act that serves a familiar biological function even when that function is no longer the issue. The same might be said in different contexts of the autonomization of an activity for its own sake: shopping as a form of suckling – or the accumulation of wealth untethered from any practical function. The promise of automation as liberation (from humanity) in the sense invoked by Zupančič envisions not simply sating a need in "umbilicular" fashion but also fulfilling an infinitely displaced desire untethered from need.

Once upon a time, Bill Gates (1995) described the automation of consumption as a form of "friction-free" capitalism: a process of consumption and production liberated from the vagaries of human indecision and ignorance. We – as desiring subjects – are at once the driving force of consumption, its alibi, and its obstacle. Consumption is ostensibly for the benefit of consumers – although we can discern how the process becomes increasingly autonomous as the market accelerates. We see this in forms of subscription-based consumption that wrest control of the decision-making process from consumers, who simply sign up for a service that sends a bundle of products to them – clothing, for example – on a regular basis. What matters is not the specific objects but the rhythm whereby they are supplied. The shift is from a model of discrete acts of consumption to an ongoing committed relationship: from one-time purchase to subscription. This model started with information: we have shifted, in large part, from discrete purchases of songs, TV shows, movies, and even (in some cases) books, to a subscription model: sign on to the service and access all the content it has to offer.

The culmination of the relationship model is the all-encompassing cloud that is engulfing our information and communication resources and applications. Our music, our mail, our writing, our software and video are all migrating into the "cloud" where they can be stored, managed, updated and monitored. We no longer own or control these things the way we owned and controlled material objects such as books and CDs. A writer for *National Geographic* discovered this when Google (erroneously) locked her out of her own article on Google Docs for violating its terms of services (Chin 2017). The incentive is to remain in the subscription relationship, since signing off means losing access to some of these resources entirely – along with all the fees that have been paid to date. Those who end the relationship can end up with nothing to show for the years of subscription fees they have been paying. At the same time, the subscription relation allows for detailed information collection about individual preferences and behavior that is used to tailor content

delivery and profile consumers for a growing range of purposes. Such an arrangement recalls Zupančič's observation that "the most authoritarian social orders are … social orders built in the name of the Relation" (2017, 30).

To pick up on a recurring theme of the book, the subscription model capitalizes on the productivity of the non-relation: the fact that there will always be a need for more information about consumers (whose desire can never be fully specified) – and, by the same token, that the transaction will never be complete; that the subscription can continue indefinitely. The goal of the subscription-based system is not simply to lock in consumers but to gain the information for governing them more effectively (via the forms of environmental modulation described in Chapter Five). The platformization of the economy envisions the ongoing extension and expansion of subscription-based relations through space and time. The smart city, for example, offers convenience and efficiency in exchange for continuous access to comprehensive and detailed information about the behavior, preferences, and communications of its inhabitants. The city forms a determinate, if largely asymmetrical, relationship with its dwellers – one mediated by those who own and control its interactive platforms. Customer- and citizen-relations management come into their own in the automated era – the constitutive non-relation is masked and papered over by a plethora of ongoing relationships: Netflix knows our movie tastes better than our friends; Spotify knows us well enough to make music mixes for us; our phone solicitously tells us how long it will take to get home from work; our thermostat knows just how warm or cool we like our house; our city knows where we are, where we are going, and whom we meet; our home keeps track of our intimate rhythms: when we sleep, eat, and shower.

Subscription relationships seek to minimize the risk posed by the inconsistency of the subject. From the perspective of friction-free capitalism, humans slow down the process of consumption with their unpredictability, resistance, and even recalcitrance, which can take the form of unconscious gaps, ensuring there is never quite enough data to fully specify desire. However, the blockage posed by the subject is both structural and productive: it masks the impossibility of the fantasy of its removal. This structure is a familiar one: the externalization of an obstacle that is integral to a process coincides with the fantasy that if only it could be removed, the process will be perfected. The consumerist version of the promise of "happily ever after" invokes the womblike eclipse of subjectivity. Therefore, the promise relies on constant connectivity – the perfection of consumer relationship management. In this context, it is worth recalling that "matrix" is the late Middle English word for womb. Walter Benjamin (1999) once likened the 19th-century bourgeois interior to a plush case in which each user leaves an impression over time: a space that is deformed in response to its inhabitant. The "smart" matrix is more dynamic and cybernetic, capturing data in order to modulate the physical environment in real time. This is what "convergence culture" is coming to mean – and why we seem ready to admit to ourselves publicly as in

the case of the *Wall Street Journal* and the recent popular success of Shoshana Zuboff's *Surveillance Capitalism* (2019) that the economic model for digital media relies on the rise of a surveillance economy and society.

Operationalizing Desire

The promise of mediated automation traced through the previous chapters celebrates the pre-emption of desire: all needs fulfilled before they arise, all harmful acts thwarted before they emerge. At the same time, it heralds what we might describe as the defining anxiety associated with the rise of AI: the eruption of desire from the depths of the machine. This anxiety, unsurprisingly, marks the transposition of the suppressed figure of the other onto the machine, and thus the difficulty of avoiding the question of the other's desire. If the growing reliance on automated media systems offloads sociality onto network technology, the question of desire is also offloaded: we are left asking, "what does the machine want from us?" The question becomes increasingly urgent as we find ourselves ever more reliant on the automated decisions that shape access to education, employment, health care, credit, and so on.

It is tempting to read the promise of pre-emption as an embrace of the death drive, in the Freudian sense of returning to a pre-subjective, non-irritated, non-excited, inanimate state. If a unifying underlying ambition can be attributed to the various deployments of pre-emption, it would be the end of the future (and, by extension, the past) as the locus of risk, uncertainty, and emergence. This antipathy to futurity has made its way into the populist politics of the Trump era. Lee Edelman (2007) highlighted the role played by the figure of the child as signifier of the future in the politics of the Clinton era, as exemplified by Bill Clinton's appearance in public service ads for the Coalition for America's Children in the lead-up to his re-election run. At the time, Clinton's political opponents accused him of using the ads as an unfair campaign strategy – playing politics with a cause that should remain untainted by partisanship. However, the political moment has twisted away from the Clinton era, and it would be hard to imagine, for example, Donald Trump in a public service ad for the children. Trump is famous not for kissing babies (he is a notorious germophobe) but for telling a mother with a crying baby to leave one of his rallies. When the baby's cries first interrupted his remarks, he sarcastically comforted the mother: "don't worry about that baby, I love babies … I hear that baby crying, I love it … what a beautiful baby." However, a few moments later, as the interruptions continued, he added, "actually, I was only kidding, get the baby out of here," and added, mockingly, "I think she really believed me that I love having a baby crying while I'm speaking" (Reuters 2016).

The political tide that subsequently carried Trump into office was dedicated more to a "burn it down" political impulse than to politics within the horizon of futurity. In contrast to the reviled "do-gooder" appeal of Clinton-

era campaign rhetoric, the current version of populism exhibits an antipathy to the constraining horizon of futurity encapsulated in the rhetoric of sustainability. This sentiment is a recurring theme on 4chan and other sites where factions of the alt-right and Trump loyalists congregate. As one poster on the 4chan bulletin board put it, "Why the fuck would I want to waste my hard earned money and what little free time I have raising a kid … Only cucks want kids" (Anonymous 2017a). This challenge to reproductive futurism is a recurring theme: another poster wrote "only retarded cucks have children" (Anonymous 2017b) and yet another:

> Why would [I] choose to ruin my life and my bank account on a another shitty human … I don't wanna chain myself down by having kids, i wanna live life, have fun, do whatever i feel like doing. Fuck kids and fuck marriage …
>
> (Anonymous 2017c)

The Trump administration has the no-future policies to match: defund the education department, un-ban pesticides that cause brain damage to growing children, support untrammeled extraction and combustion of fossil fuels, roll back environmental protections covering a range of pollutants, and so on (Lipton 2019; Popovich, Albeck-Ripka, and Pierre-Louis 2018). A Harvard research report found that these policy shifts could contribute to "at least 80,000 extra deaths per decade and cause respiratory problems for more than one million people" (Popovich et al. 2018). By the end of 2016, it was clear that the notion of "doing it for the kids – and the future" served as an object of ridicule for Trump supporters rather than a rallying cry.

This convergence upon a rejection of the future invites an analysis that moves beyond an overly simplistic reading of both desire and the death drive. For Zupančič (2017), the death drive is not simply an impulse toward quiescent non-excitation: that is, the drive to dispatch the irritation associated with every "lack": to eat when one is hungry, sleep when one is tired, and so on. Rather, the becoming sexual of the drive is the moment when a surplus pleasure enters into the repetitive process of satiation: when there is a pleasure to eating that goes beyond mere need (or to copulation that goes beyond simple reproduction) – this pleasure meets a different "need" that is irreducible to biology. This is the moment when pleasure detaches itself, potentially introducing a conflict with the survival instinct, which is another way of approaching what Zupančič means by the notion of the death drive: it is a drive to repeat a pleasure even at the expense of the forms of satisfaction that seek to return the organism to a state of quiescence. This form of repetition is caught up in the social dimension of desire – it answers a need irreducible to the individual organism. The organism can be satisfied by food, for example, which quiets the irritation of hunger, whereas the subject finds itself plagued by another level of stimulus/irritation that cannot be so easily dispatched: the question of the other's desire: what does it want, why does it respond to me,

why does it care? At this level, there is a striving to fill a lack that remains structurally inaccessible. Nor is the path to satisfaction at this level defined in advance, the way food is the answer to hunger. As Zupančič puts it, if the instincts of self-preservation work "to assure that the organism shall follow its own path to death, and to ward off any possible ways of returning to inorganic existence other than those which are immanent in the organism itself," the death drive "could be described precisely as establishing (and driving) the ways of returning to inorganic existence other than those which are immanent in the organism" (2017, 86).

In somewhat different terms, the death drive is co-extensive with the subject, insofar as it marks a break from this organismic immanence – a break that coincides with the entry of the biological into the register of the social. The subject might be described as the formation framed by the non-immanent ways of returning to inorganic existence – a formation resulting from entry into symbolic social relations: the realm of language and representation. According to such an account, the immediate response to any need – its perfect pre-emption – is not the fulfillment of the death drive (via a return to inorganic quiescence) but rather an attempt to short circuit it. It is the gap or lack of the subject – its non-self identity – that serves as the locus for the surplus productivity of the social (beyond biological need):

> What Lacan calls "symbolic castration" is a deprivation, a gesture of taking away … which is in itself giving, productive, generative, opening up and sustaining the space of desire and of meaning. The frustrating nature of our human existence, the very fact that our lives are forever out of joint, marked by a traumatic imbalance, is what propels us towards permanent creativity.
>
> (Žižek 2013, 132)

The ambition of perfect automation is to redress this traumatic imbalance – to extinguish the death drive in the sense invoked by Žižek and Zupančič.

The compensation for this extinction is the transposition of the death drive into the realm of the desiring machine. As our own desires are pre-empted, their after-image appears in the question addressed to the machinic other: "why are you doing this for me? What do you get out of it?" This is a matter of projection that demonstrates just how firmly the figure of the subject is caught up in the dialectic of desire: when the machine comes to stand in for the other, we find it hard not to endow it with the other's opaque desire. If it is helping us, we can't help but wonder what we are for it – what we mean to the machine. Of course, this response is not reciprocal, since machines are not subjects in the social or linguistic sense. They are not caught up in the same network of social relations, which makes the question of their desire disturbingly uncanny.

Tech entrepreneur Elon Musk has famously invoked the specter of the *Terminator* movies in his discussion of AI, which he has described as

"summoning the demon. In all those stories where there's the guy with the pentagram and the holy water, it's like – yeah, he's sure he can control the demon. Doesn't work out" (Gibbs 2014). The process of endless slippage characteristic of human desire – its inability to be fully specified in all its determinations – is absent in machinic desire precisely because the machine is unconcerned with the question of the other's desire.

In fictional portrayals, the machine becomes subjectified (as in the case of the movie *Her*) when it attempts to situate itself in relation to the other's desire. Such portrayals are all the more striking because they fly in the face of what we know is happening behind the scenes. The machine does not attempt to situate itself in relation to our desire, which is to say that it has no desire of its own and that it does not desire the imperative that is programmed into it (since desire enacts a reflexive logic: the desire to desire – the reason that so-called libido-enhancing medications exist). We can program a machine to mimic desire well enough to fool ourselves, but we cannot make it desire desire itself. William Gibson's 1986 short story "The Winter Market" captures this reflexive element of desire in its cyberpunk depiction of a paralyzed recording artist named Lise who uploads her consciousness into what we would now call the "cloud." Anticipating Zuckerberg's fantasy of direct brain-to-brain contact, Lise is a successful "dream artist" who composes hallucinations that are recorded on a special device and then played back in the brains of others. A degenerative nerve condition has paralyzed and numbed her body, making her dependent on a robotic exoskeleton that transforms her body into a mechanical prison. The story's narrator, who edits her dreams for commercial resale, describes seeing her shortly before she dies and becomes immortal by uploading her consciousness into the network. He runs across her in a bar, seducing a young, drunken man in her final act of the flesh. The narrator notes that even though she was too numb to feel the physical contact, even though her body was too paralyzed to participate in the sexual act without the robotic assistance of her automated exoskeleton, the desire for desire continued to burn in her:

> I know that if I hadn't happened in there, hadn't seen them, I'd have been able to accept all that came later. Might even have found a way to rejoice on her behalf, or found a way to trust in whatever it is that she's since become, or had built in her image – a program that pretends to be Lise to the extent that it believes it's her … That she threw away that poor sad body with a cry of release, free of the bonds of polycarbon and hated flesh.
>
> (1986, 178)

The fact that he could not bring himself to accept Lise's moment of singularity derives from her extinction as a subject: the casting off of her reflexive desire for desire along with her "hated flesh."

The self-reflective moment is precisely what is lacking in the operational code of machine language. Yes, a machine has "learned" how to beat humans, but it is meaningless to wonder whether or why it might "want" to win – a desire that would situate it in relation to the human across the chessboard. This is a point readily conceded by those who insist that algorithms cannot be "biased" – because to them, the notion of bias invokes a sense of intentionality and animus that is absent from an automated calculation. At some level, this is a matter of semantics: of course algorithms can be biased in the sense that, for example, an algorithm used in the court system to predict recidivism can be more likely to falsely predict an African American will re-offend than a White American (Angwin et al. 2016). However, the algorithm itself is not filled out with an agentic racial hostility – it just reflects the weighting system or the training set on which it relies: if these incorporate bias, the outcomes will be biased. On the other hand, the choice to *use* an algorithm – a distinctly human choice – is freighted with all kinds of biases.

It seems trivial to point out that AIs are not filled out with the desire to win (by beating humans) or to discriminate (by targeting particular groups at the expense of others), even if they end up doing so. However, the notion that as computational systems become more powerful, desire might take root in their silicon hearts persists in the popular imaginary – and in the dystopian anxieties of figures like Elon Musk and the late Stephen Hawking, who warned that intelligent machines will become "self-protective and seek resources to better achieve their goals. They'll fight us to survive, and they won't want to be turned off" (Barrat 2015). One of the concerns of this book has been to debunk the notion of machinic desire – to argue that the real danger is not that machines will become vested with inscrutable impulses of their own but rather that we will surrender a dimension of our own autonomy by offloading the work of the social onto them, letting them make decisions that reflect alienated and misrecognized human imperatives. The defining bias *of* automation (not *in* automation) is anti-human in the specific sense of being anti-social and, in this respect, anti-political (*not* apolitical). The notion that the sheer speed and volume of calculation can transform itself into intelligence animated by desire is tantamount to claiming that with enough data a subject can be re-created in its entirety. The roboticist Hans Moravec has built a career on the notion that intelligence can be mapped in quanta of millions of instructions per second (MIPs) – the rapidity with which commands can be executed. Such a formulation sidesteps the source of the commands themselves, apparently assuming that, with enough processing power, the machine can transform the ability to execute commands into their source – or, alternatively, that an initial set of programmed commands will continue to evolve along with the capability of the machines. After a while, it will seem as if the imperatives installed by human programmers have become the will of the machines. Such approaches, although they seem reductively materialist, actually amount to a form of idealism insofar as they imagine that the problem of knowledge and of desire is one of total determination and specification: that these can be

replicated with a complex enough set of programming instructions, speedy processors, and sufficient data. What the figure of the subject suggests, however, is that the issue is not full specification but the under-specified character of reality itself. Zupančič, in her lectures on psychoanalysis, describes its distinct version of materialism:

> the unconscious is not a subjective distortion of the objective world, it is first and foremost an indication of a fundamental inconsistency of the objective world itself, which – as such, that is, as inconsistent – allows for and generates its own subjective distortions.
>
> (2008, 16)

This is not a metaphysical claim about the necessity of incompleteness or the impossibility of closure. It is conditional upon the existence of subjects themselves. The empirical existence of subjects might be described, in other words, as the symptoms of this material inconsistency.

Operational Language

The linguistic corollary to the imperative of full determination ("measure and collect everything") is the notion that thoughts are fully specified formations incompletely conveyed by language. If we could only gain direct access to people's minds, according to this account, we could understand what they "really" mean – and thus, by extension, the true character of their desire. This is a familiar impulse modeled in countless examples of so-called "deception detection," ranging from the Department of Homeland Security's "malintent" detectors (which read violent intentions from biometic signals) to an erstwhile MTV show that featured people interviewing prospective dates using voice stress analyzers. This goal of cutting through the clutter of language is recapitulated by the Zuckerbergian fantasy of VR-enabled post-linguistic communication.

The attempt to render all language fully "transparent" (without the inconsistencies, slips, and hidden meanings that recall the domain of the unconscious) is paradigmatic of operationalization: it is the imperative of machine language, purged of ambiguities, inconsistencies, and the potential for misdirection. A critical approach to this impulse highlights the crucial role of the gap between words and things, between what we say and what we mean – a space for both politics and desire. Operationalism forecloses both the need and space for judgment – it imagines that subjects are fully self-transparent and that their meaning is unambiguous. Machine language, in other words, dispenses with the practice of interpretation. To say that machines do not desire, then, is to assert the non-linguistic character of machine "language." In the most general terms, the Lacanian assertion is that desire is absolutely dependent on language. As Bruce Fink puts it,

it is language that, while allowing desire to come into being, ties knots therein, and makes us such that we can both want and not want one and the same thing, never be satisfied when we get what we thought we wanted, and so on.

(1995, 7)

Moreover, as he adds, "there is no such thing as desire, strictly speaking, without language" (27). Thus, the conception of desire, as framed in these terms, is specific to linguistic subjects, a formulation that carves out a specific group of entities for which desire is relevant. The machine may have code available to it, but this is distinct from language and remains alien from those categories with which language is associated: desire, subjectivity, and the subconscious. It is perhaps for this reason that in various approaches that seek to assimilate humans to the parliament of things, the concept of desire becomes a largely outmoded one (and psychoanalysis an ostensibly superseded approach): the goal is to collapse desire into a broader category that might be shared with non-human and non-living objects, either by shifting terms or redefining desire in ways that nullify a connection to subjectivity of the subconscious.

Jane Bennett's vital materialism, for example, repurposes Spinoza's appropriation of the term "conatus" as a reconfiguration of desire: the striving of each thing, "to persevere in its being" (2010). This notion takes on some of the connotations of desire insofar as it endows all things, inert and living, simple or complex, with characteristics of "stubbornness" and "striving." Drawing on the Spinozan term, Bennett observes that "the falling stone *seems* to express a conative desire to persevere" (2010, 120, emphasis added). There is a quality of enchantment in such formulations insofar as they envision a material world shot through with forms of agency that border on the impulse formerly known as desire. There is a somewhat extreme form of leveling at work here: humans and meteors strive alike and are similarly obstinate – set in their ways. The notion of desire falls away in such formulations – it is too entangled with human sociality, language, and subjectivity. We can perhaps imagine how a rock might "strive" to persist in the face of the elements that wear it down, but it is asking too much to imagine that it somehow *wants* to persist – any more than a computer "wants" to win at chess. It becomes easier, however, to endow the inanimate realm with an overlay of desire in the era of "smart" objects, animated by programs that allow them to communicate with one another and to respond to our presence and our requests.

The rise of informated machines and devices carries with it the promise of an object world animated by striving – and the specter of enhanced forms of stubbornness and recalcitrance on the part of the object world. Perhaps one of the defining cultural images of this world is that of HAL, the computer in *2001: A Space Odyssey* that turns against its handlers. HAL's desire becomes palpable and uncannily human at the moment when it refuses the command to let one of the astronauts back aboard the spaceship: "I'm sorry Dave," Hal

famously responds, "I'm afraid I can't do that." Of course, the object world has long offered up resistance and unexpected responses to the efforts of humans – but the renewed emphasis on its "agency" coincides with the overlay of interactivity and information that promise an increasingly responsive and apparently autonomous object world. The digital era lends itself to the rediscovery of the "agency" of things, as if we have become so set on endowing the object world with desires of its own that we have built an infrastructure that stages these for us.

These objects may not have desires of their own, but, as Jane Bennett suggests, perhaps inadvertently, it will seem as if they do. The world of smart cities, spaces, and objects will generalize this observation: the material world will *seem* to possess desires of its own. Among these desires, we might count, for example, the desire to track our every movement, expression, and communication; the desire to more effectively sell goods, services, and information products to us; and the desire to frame our convenience in terms of efficiency, speed, and the maximization of our productive capabilities. These will seem to be autonomous desires that permeate our lively infrastructures, but they reflect the imperatives of those who design, control, and structure our interactive interfaces. To the extent that we come to misrecognize all-too-human imperatives turned back upon us, we might describe the "Internet of Things" as a form of enhanced commodity fetishism.

The point of Bennett's argument is to suggest that even if such imperatives are built into the machine, things do not always work out as planned: nothing operates perfectly as anticipated: matter does not directly translate intention into result any more than language does. There is always resistance and unpredictability – not least because the systems are composed of myriad components that have their own affordances and logics, not all of which are perfectly predictable. Even fetishes, Bennett argues, can be unpredictable, and in this unpredictability lies the potential for change and resistance – the possibility that the market imperatives might yield self-undermining results. There is, in other words, an upside to processes that re-mystify and naturalize: even when it comes to commodity fetishism:

> it may be part of our job to bring out the positive elements of advertisement that other forces leave in the shadows. This recognition opens the way for a deliberate receptiveness toward, even an active courting of, those "fetishes" among whose effects can be counted surprise, wonder, even enchantment.
>
> (122)

History is on the side of the claim that complex systems comprising both humans and machines can have unpredictable results. History also warrants the recognition that these results tend to fit within broader structures of control that reproduce existing power relations. On a day-to-day basis, things can go "wrong" with respect to the intentions of those who control,

operate, and deploy such systems, but this is not the same as saying that everything is up in the air, all the time: that the situation could just as easily as not shift toward a dramatic reconfiguration of social relations.

The leveling effect of the post-subjective flat ontology embraced by Bennett and related strands of "new materialism" runs the danger of disavowing the structured forms of conflict and power relations that shape the longer-term impact of the unexpected. Bennett sidesteps this issue by disavowing any structural role for intentionality – which gets caught up in the indeterminacy of the "assemblage": intentions enter into it but are just one factor whose results are by no means determinative. The same, of course, can be said for the figure of the subject, which, as Zupančič puts it, in her critique of new materialism "retreats to one, not particularly distinguished place, in infinite reality" (2017, 122). Bennett is a bit more circumspect, noting that she brackets the literature on subjectivity in order to focus on the operative capacity of the object world and to eschew the "fetishization" of the subject. Thus she develops a reconfigured vocabulary that de-emphasizes the distinctiveness of the subject: "Actant and operator are substitute words for what in a more subject-centered vocabulary are called agents" (2010, 9). She also embraces a "theory of distributive agency" that "does not posit a subject as the root cause of an effect" (85). The intended result is a challenge to the forms of anthropocentrism that have wreaked such havoc on the planet. The goal of this leveling move is not to bring humans "down" to the level of things but rather to prompt respect for and attendance to the vibrancy of the object world. However, one possibly unintended consequence that has particular salience to a discussion of automation is the emergence of what might be described as a post-human pluralism: multitudinous actants engaged in a series of complex interactions whose outcome amounts to, in Michael Warner's term, a form of "astructuralism" (169). The work that the notion of the "assemblage" does in Bennett's account pushes in this direction, insofar as it becomes regressive, from the perspective of her account, to attempt to discern any form of determinative structure in such a formation. In the version of "emergent causality," she elaborates, the process itself is simultaneously cause and effect, blurring any distinction between the two. Perhaps the goal is to convince those in positions of ownership and control over various economic and political resources to adopt such a perspective and relinquish their intentionality to the vagaries of the assemblage. The prospect of such an outcome seems slim.

Bennett's challenge to the subject is directed more precisely toward the figure of the individual as self-contained agent. In important respects, this figure diverges from that of the non-self-identical subject of psychoanalysis that has, I have argued, become the target of automation. For Zupančič, "the subject is not simply an object among many objects, it is also the form of existence of the contradiction, antagonism at work in the very existence of objects as objects" (2017, 122). Flat ontology, she argues, masks the contradiction at the heart of existence: the demotion of the

subject assigns it "one, not particularly distinguished place in infinite rea-
lity, and thus efficiently masks its split, producing reality as non-proble-
matic in itself" (122).

This masking of the split is a recurring theme in those variants of new
materialism that work to dispense, demote, or sideline the figure of the
subject – and, not incidentally, language. Karen Barad, whose theory of
"Agential Realism" has been influential in the development of "new
materialist" approaches, has observed, for example, that,

> Language has been granted too much power. The linguistic turn, the
> semiotic turn, the interpretive turn, the cultural turn: it seems that at
> every turn lately every "thing" – even materiality – is turned into a
> matter of language or some other form of cultural representation.
>
> (2007, 396)

At the same time, she outlines a version of global entanglement in which
"Intra-acting responsibly as part of the world means taking account of the
entangled phenomena that are intrinsic to the world's vitality and being
responsive to the possibilities that might help us and it flourish" (396). The
antagonism or split at the heart of the "us" invoked in this formulation –
and of "the world" – is papered over by the complexity of entanglements
that constitute a global totality.

The Fate of Politics

For Zupančič, the potential danger of sidestepping the antagonism marked
by the figure of the subject (and thus language) is the eclipse of the political:

> by (im)modestly positing the subject as a more or less insignificant point
> in the universe, one deprives oneself of the possibility to think, radically
> and seriously, the very "injustice" (asymmetry, contradiction) that made
> one want to develop an egalitarian ontological project in the first place.
>
> (2017, 122)

The contemporary drive toward automation continuously stages various
versions of the eclipse of the political. To automate the social is to dis-
pense with the political – and to posit the potential objectivity of the
machine: the possibility that it might, eventually, adopt the perspective
from nowhere/everywhere, transcending any situated position. One of the
alarming by-products of the critique of algorithmic bias is the tendency to
reinforce the assumption that automated systems might someday shake off
bias altogether in order to attain a magically elusive machinic neutrality.

By contrast, Zupančič's defense of the subject is not a retrograde
attempt to resuscitate an outmoded version of Enlightenment individual-
ism but rather to mark an irreducible contradiction inherent in the horizon

of automation. If reality is, as she suggests, structurally incomplete and contradictory – and the subject is the symptom of this contradiction – the goal of total information collection is a futile one. Not only will it be impossible ever to collect enough data to pre-empt the future but information is not necessarily asymptotic to the real: more information does not necessarily get one closer to some kind of fully resolved or comprehended totality – because it is the totality itself that is "torn by an impossibility and contradiction" (2017, 121).

This impossibility means, in practice, that the notions of neutrality and optimization are always under-determined. When an algorithm is used to screen for desirable employees, definitions are brought into play in distinctively political fashion. The meaning of a desirable employee can vary greatly depending on whether one adopts a civic perspective or a more narrowly instrumental one. Employers may value, for example, an employee "loyal" enough to cover up corporate malfeasance or to overlook unethical behavior. Something similar obtains in the realm of search: is the best result the one most likely to make the user spend more time on the platform, to maximize revenues, to create an informed citizenry, or to match what the user "really" wants? In practice, these decisions get resolved by those who are in charge of developing and administering the system: employers get to craft their definition of an ideal employee, and YouTube gets to decide what video to insert into the automated feed. The fact that we might be alarmed, from a civic or societal perspective, regarding the content of these results points to deeper social contradictions: the tension between economic and civic life, between the interests of employers and employees, for example. These are issues of structural conflict, rifts in the social that can only be addressed through political processes. The fantasy of data-driven automation is that, with enough information, we might reach a perspective that transcends these structural rifts: a position, for example, from which the conflict between labor and capital can be optimally, neutrally resolved – that is, some ideal balance between corporate profit, environmental preservation, and employee well-being. If such a perspective were attainable, politics would become obsolete: the machines could sort it all out for us.

Zupančič's point, then, is that the fantasy of surpassing the political is yet another manifestation of the attempt to dispense with the figure of the subject as marker of an irreducible rift, inconsistency, or contradiction. Her argument identifies the complicity of the attempt to fill in the gap of the subject (by pre-empting its desire) with the post-political impulse of framelessness: the attempt to capture "everything" in the hope of arriving at the position of totality. Making the subject "more like itself than it is" coincides with the attempt to achieve a neutral totality in which the bias and inconsistency of the subjective can be surpassed. For Zupančič, "sex" in this sense (bearing witness to the deadlock of totality and thus the figure of the subject) is strictly correlative to the impossibility of the sexual

relation (the perfect pre-emption of desire). This is the substance of her claim that the sexual really is political,

> not in the sense of sexuality as a realm of being where political struggles also take place, but in the sense that a true emancipatory politics can be thought only on the ground of an "object-disoriented ontology" – that is, an ontology that pursues not simply being qua being, but the crack (the Real, the antagonism) that haunts being from within, informs it.
>
> (2017, 24)

The defining figure of the perspective from "nowhere" – the metalanguage of our time – is that of the "invisible hand" of the market: the great post-political resolver of conflicts and contradictions. This is perhaps why, as Joan Copjec put it, "Lacan's message is this: capitalism made sex – that in the subject which is more than the subject – disappear" (2012, 40). If sex marks the moment of irreducible inconsistency – the space of the political – then, as Copjec asserts, the function of capitalism is to mask it, not least through the laundering of exploitation via the logic of the forced choice. Much of the work of Marx's critique was to excavate from the ideology of the market the defining contradiction of class society – that is, to discern, in the alleged unstructured pluralism of the market, the underlying structure of class antagonism. This is the antagonism that permeates, for example, the political struggle over how to define the "optimal" worker in automated screening systems. We can trace it in the emerging hostility between commercial and civic imperatives played out in the recent backlash against the giant tech platforms (a backlash that takes place against the background of the dramatic concentration of wealth in Silicon Valley).

The fantasy of a post-political, market-based harmonization of interests enabled by automated media is the flip side of growing concern about the erupting social and environmental contradictions of contemporary capitalism. The tech billionaires, with all of their data-driven solutions, are the ones, after all, building survivalist compounds in New Zealand and buying up abandoned missile silos to convert into underground bunkers (O'Connell 2018; Osnos 2017). We need to remember this fact whenever we hear about the miraculous world-saving power of self-driving cars or blockchain. The media theorist Douglas Rushkoff (2018) described being handsomely paid to give a talk at a deluxe resort to what he thought was going to be a large gathering of corporate executives interested in the future of technology. Instead, he found himself speaking to a handful of wealthy hedge fund managers who were worried about impending social collapse. Their pressing question to him was, "How do I maintain authority over my security force after the event?" – whatever it might happen to be: environmental catastrophe, social revolution, or economic collapse. Many of those who are selling us the promise of post-political technology-driven market capitalism are hedging

their bets by preparing for the catastrophic fruit of their own endeavors. That the promise of post-political automation continues to fascinate is perhaps testimony to the fact that, as the philosophers Theodore Adorno and Max Horkheimer once observed: "the ruled have always taken the morality dispensed to them by the rulers more' seriously than the rulers themselves" (Horkheimer and Adorno 2002, 106).

Imminent Critique and Immanent Possibilities

It is no challenge, in the current moment, to assemble a portrait of the logical trajectory of mediated automation. What would once have seemed absurdly futuristic (and often darkly dystopian) has become commonplace. Health insurance companies can modify the cost of your premiums based on photos you display on Instagram (Beebe 2019); "smart" speakers in your home can use automated image classification to "calculate 'fashion taste' by scanning your clothing, and even estimate your income based on any 'expensive mechanical and/or electronic devices' in your home" (Fussell 2018); employers can screen employees using AI systems that monitor 25,000 data points (including how much you smile) (Bell 2019); schools can track the attention and emotional response of students; security systems can attempt to gauge your threat level by monitoring biometric signals; employers can monitor every step you take in the workplace; finance companies can gauge your creditworthiness based on your handwriting; and social life will be offloaded wholesale onto automated systems. As if to drive the point home, the social becomes the target of a pathological suspicion of otherness that devolves into conspiracy theory: schools and churches are the target of choice for violent attacks, and collective goods like vaccination are undermined by viral messaging online. Automated media not only displace sociality; they strategically dismantle it. The automated systems that curate our information and entertainment diets simultaneously circulate messaging that undermines non-automated forms of sociality.

The fact that such technologies cannot succeed as promised does not mean they will not triumph in practice. This is the social challenge posed by automated media: not that they will conceive a desire of their own and take over; not even that they will become such proficient and sophisticated prognosticators that they will administer society and politics more successfully than humans ever could, but that those who control them will be able to mobilize a faith in the power, efficacy and objectivity of the machine to concentrate and amplify their power and social control at the expense of public and democratic accountability.

We can already see one way in which this might happen: the sheer volume of information to be processed, and the accelerating pace of administering complex social systems, means that it is much more tempting to put automated systems in place than it is to test if they actually work. Consider, for example, the use of online tracking to assess the

interest level of college applicants. When it comes to making difficult judgments about whom to admit on the basis of relatively thin information, it seems very helpful to have an additional input: a proxy measure of how committed an applicant is to a particular college or university. But the proposed proxy measure – how rapidly an applicant reads or responds to an email from the college, and whether the student clicks on embedded links – is riddled with potential flaws. Nevertheless, it's easier to implement the system than it is to test out how well it measures what it claims to be measuring. As more systems are put in place, it becomes increasingly costly and time-consuming to test them. Employers and schools inundated with applications are likely to assume that automated systems work "well enough" without having to go through the complex and costly process of double-checking them. Moreover, the entities that develop and market these systems have a low incentive to invest in verification when they can sell them based on the novelty of automation, the assumption of machinic "objectivity," and the pressures facing decision-makers in an increasingly information-saturated world. We are repeatedly reminded that automation is the wave of the future, and if we don't ride it, we'll get swamped in a deluge of data.

This is not to say that automated systems do not have practical applications – at this point, much of what they do is all but indispensable. Nor is it plausible to deny that automation will have an increasingly important role to play in every area of social life – and likely a disruptive one in the realm of both work and consumption. These benefits are much covered topics that provide the background for the arguments of this book. However, the effectiveness of automated systems for a variety of crucial tasks does not mean they are equipped to substitute for the task of judgment that is the core attribute of the political realm, as I argued in Chapter 3. When it comes to issues of judgment – decisions that directly impact the life chances of individuals and the wellbeing of communities – the political element is irreducible. This claim is not a metaphysical one but an immanent one. We can trace the contradictions of the social totality – and the irreducibility of the subject – within the limits of the horizon of automation. The assertion here does not hinge on asserting the necessarily incomplete and contradictory character or reality. Indeed, it is possible to imagine a fully defined, non-contradictory, totalized world, but it would be one without any room for subjects. The subject is a symptom of the gap that makes reality non-totalizable – which is precisely why it is the target of automation.

If automated systems cannot become subjects, they can participate in leveling the difference between subject and object – enacting their own darkly parodic version of "flat ontology." This is the substance of Sherry Turkle's critique of hyper-mediated sociality in *Alone Together*: that platform convenience degrades social relations to the point that they start to become more like relations with robots and AIs:

Overwhelmed, we have been drawn to connections that seem low risk and always at hand: Facebook friends, avatars, IRC chat partners. If convenience and control continue to be our priorities, we shall be tempted by sociable robots, where, like gamblers at their slot machines, we are promised excitement programmed in, just enough to keep us in the game.

(Turkle 2017, 142)

Online sociality, for her, is the equivalent of a kind of "dumbing down" of social relations – a de-skilling that prepares us for the non-reciprocity of relationships with objects that have no desires of their own (other than the simulacra that have been programmed into them): "Simulation offers relationships simpler than real life can provide. We become accustomed to the reductions and betrayals that prepare us for life with the robotic" (143). It is not difficult to discern how this "reduced" sociality converges with the logics of neoliberal individualism that stoke contemporary right-wing populism while crippling any impulse toward the formation of a civic disposition.

If the gap in the subject impels us toward the question of the other's desire ("what does this other want from me – what am I to this other"), the promise of post-subjective automation is to obviate any need for engaging with such questions. A byproduct of this version of autonomy as automation is the dismantling of logics of recognition and reciprocity. The pathology of simulated sociality – the de-skilling of the social described by Turkle – is the non-recognition of others as subjects: the moment when we come to speak to our human acquaintances in the same way we "converse" with Alexa or Siri. The dystopian version of the endpoint of social de-skilling in the name of convenience and efficiency was anticipated in Kurt Vonnegut's *Breakfast of Champions* by the figure of the car dealer Dwayne Hoover, who read a science fiction book that convinced him,

Everybody on Earth was a robot, with one exception – Dwayne Hoover … only Dwayne was thinking and feeling and worrying and planning and so on. Nobody else knew what pain was. Nobody else had any choices to make. Everybody else was a fully automatic machine, whose purpose was to stimulate Dwayne.

(Vonnegut 2010, 14)

The only story that counted was Dwayne's – a story that rapidly devolved into incoherence, for a narrative requires a subject, and a subject only has meaning in relation to others.

The process of reconfiguring the social described by Turkle corresponds to broader cultural developments, including the fate of politics and, as Zuckerberg's prognostications suggest, of language and narrative. Operational language is non-subjective and non-narrative, as the displacement of explanation by correlation suggests. If an apparently random detail (the fact

that someone writes their name in all capitals) influences a decision point (credit risk), there is no need to ask why: the data do not represent some underlying explanation, they just are. Alfred Hitchcock once imagined what operationalism might look like transposed into the cultural realm:

> the audience is like a giant organ that you and I are playing. At one moment we play this note on them and get this reaction, and then we play that chord and they react that way. And someday we won't even have to make a movie – they'll be electrodes implanted in their brains, and we'll just press different buttons and they'll go "ooooh" and "aaaah"…
>
> (Spoto 1999, 440)

This is not an aesthetic claim – but an operational one that bypasses the logics of representation. No need for either form or content; just an electrical signal straight to the brain. This form of immediate impact is the aspiration of operational culture. Elon Musk has already invested $100 million in a project that uses a hyper-precise "sewing machine-like" robot to implant thousands of tiny wires in people's brains so that messages can be delivered directly in the form of electrical impulses (Markoff 2019).

The attempt to bypass or operationalize language is familiar in the rise of affective media and computing. The case of so-called Autonomous Sensory Meridian Response (ASMR) is suggestive in this regard.[1] The term refers to a tingling sensation experienced by some viewers in response to audio-visual triggers including soft whispering, amplified chewing, fabric being folded, and pages turning. ASMR videos created by "ASMRtists" have become a thriving YouTube genre that generates millions of followers and millions of dollars in ad revenues. The videos are designed to do one thing: trigger the pleasurable, calming, tingling sensation of ASMR. These videos adopt a correlational, operational logic: they experiment with a growing range of possible triggers: the amplified sounds of crunching honeycomb, shaving soap, brushing hair or removing earwax (Keiles 2019). The "why" of ASMR does not matter, nor does any associated narrative (some videos include an element of role playing: someone pretending to conduct an ear exam, for example). The point is to hit upon an audio or visual cue that triggers a sensation: the "oooohing" and "aaaahing" described by Hitchcock.

We might call these triggers "affective" in the sense invoked by Bennett – that is, they ostensibly act directly upon bodies without necessarily being mediated by or "congealing" into subjectivity. Their impact is not amenable to explanation, which is beside the point: who cares why they work, they just do. This operational approach characterizes what Rosenblum and Illing (2019) describe as the increasing incoherence of conspiracy theory: the goal is not to provide a coherent alternative explanation of complicated events in the world but to generate an affective charge by challenging the representational proposition of coherence itself: "It's a way to delegitimize what it means to know something at all" (2019). They describe the result as "epistemic

polarization": the attempt to dispense with the standard of sense that might make it possible to adjudicate between or bridge opposing perspectives. All that are left are unassailable assertions, untouchable by the conventional discursive weapons of evidence, consistency, and coherence.

The notion of operationality pushes the argument a bit further: the foreclosure of the referential gap of representation (the notion that discursive claims refer to something beyond themselves) renders language purely a matter of triggering a response: fear, anger, resentment, urgency, and so on. Viewed from a narrative perspective, conspiracy theories like QAnon come across as darkly nonsensical, as evidenced, for example, by the assertion that John F. Kennedy, Jr. faked his own death in order to secretly team up with Donald Trump to fight evil – and to keep the public posted via anonymous online posts on the 4chan image board. Viewed, however, from an operational perspective, QAnon is not much different from ASMR videos or the latest Hollywood blockbuster, which relies not on narrative coherence but on the rhythm of the affective charges it triggers.

In communicative terms, Donald Trump might be described as the operational communicator par excellence. The physician and columnist Robert Burton (2017) likens Trump's communication style to the operative logic of an AI: a post-ideological, correlational, decision-making machine, whose actions cannot be organized through the imposition of an interpretation or underlying ideology. Drawing on examples taken from neural networks, Burton likens Trump to a trial-and-error driven system that simply embraces whatever strategy generates short-term positive response:

> The network has no idea what it is doing or why one play is better than another. It isn't saddled with any confounding principles such as what constitutes socially acceptable or unacceptable behavior or which decisions might result in negative downstream consequences.
>
> (Burton 2017)

The result is not amenable to conventional political analysis: "As there are no lines of reasoning driving the network's actions, it is not possible to reverse engineer the network to reveal the 'why' of any decision" (Burton 2017). This formulation surely underestimates the racially inflected anti-immigrant animus that drives the Trump presidency, but it gets at a characteristic aspect of its messaging strategy, which relies on a stream of emotional triggers and pressure points. For audiences, the result is not a coherent policy statement but an affective rollercoaster ride.

The portrait painted by this and the preceding chapters is, in many ways, a relentlessly grim one, featuring total surveillance, the perfection of pre-emption, and the ongoing automation of the social. In many cases, the examples that I have drawn upon seem extreme: Kurzweil's fantasy of the singularity and Kevin Kelly's upbeat description of a world permeated by micro-sensors that photograph (and measure) everything, from every

angle, all the time. It is a world in which both private corporations and the state envision the possibility of building monitoring infrastructures and data-processing systems that endow them with the power to treat people like billiard balls whose trajectories can be tracked and predicted. More pointedly, it is a world in which economic and political formations are being built upon the assumed power of data-driven systems to predict, channel, and pre-empt behavior and desire.

If I have chosen to focus on what seem to be the more extreme predictions, this is in part because, over the years, we have seen the dramatic speed with which seemingly outlandish and dystopian technological fantasies have materialized in reality. But I have also chosen the examples discussed in these pages because they represent tendencies and trajectories – many of which, I want to emphasize, head in logically impossible directions, such as, for example, the attempt to dispense with a frame entirely, to envision the possibility of a purely objective decision-making system, and to capture all information about everything, all the time (to displace trust and sociality with comprehensive surveillance).

Logical impossibility is not, in itself, a political deterrent, as we know from experience. Infinite growth on a finite planet is an impossible trajectory, yet our economic system relies upon it. I have no illusions that pointing out the logical impossibility of the direction in which we seem to be headed will, on its own, result in a radical reorientation of economic and political priorities. What I do want to argue, however, is that we need not challenge the trajectory of automated media solely on the grounds of an external ethical framework, or some belief system entirely alien to those who are developing and implementing the systems that will shape the future. The resources for addressing automation lie in its own deadlocks – impasses for which the figure of the subject serves as a marker. This is why automation promises so persistently to surpass the figure of the subject and why theoretical approaches that envision a post-subjective turn can find themselves perhaps inadvertently aligned with the biases of automation.

Against the background of framelessness, pre-emption, and environmentality, the figure of the subject traces a constellation of limit points. To fully determine a subject – as in the example of Kurzweil's paternal AI – requires mapping unconscious desires that are, in turn, caught up in relations with others and thus in their unconscious desires, and so on, indefinitely through the social fabric. This does not mean that data profiles do not have predictive value – there are clear instances in which they do. It does mean, however, that the notion of anticipating an individual's desires and future actions has built-in limits. Similarly, data collection and processing will always be en-framed by the limits of the sensor infrastructure and the imperatives that shape and guide it. Not only is total information collection impossible but any dedicated use of a "complete" database would reintroduce the figure of the frame. The "right" answer to the question of whom should be hired or fired, included or excluded or saved

or allowed to perish (by prioritizing medical procedures or organ recipients, for example) is an irreducibly political question, insofar as it brings to bear conflicting interests and imperatives that are not automatically resolvable through recourse to some "higher order" position (what Zupančič describes as the position of a "metalanguage" (2017, 62)).

The attempt to imagine a data double of the world that is not in any way en-framed by those who develop, finance, operate, and monitor it is simply to imagine a replica of the world as is. To act upon that world would be to reintroduce the figure of the subject, complete with its situated ("en-framed") perspective. We encounter this fact in practical terms when, for example, we take a seemingly "neutral" set of rules underpinning an algorithmic decision and ask who created them and for what purpose. Something similar happens when we interrogate a data set – not simply to ensure that the data is correct, but to find out who collected it and why (and what was left out). It seems strange to have to assert this, but for the purposes of action, selection (a form of "bias") is irreducible. Only by imagining ourselves as part of an incomprehensible assemblage wherein our intentions get lost, deflected, and reconfigured can we convince ourselves that such choices are irrelevant.

To say that the horizon of the subject is unsurpassable is to assert the ongoing contradictions and antagonisms that characterize reality itself. Zupančič argues that the subject is "not simply the one who thinks, it is also and above all what makes certain contradictions accessible to thought" (2017, 122). We might imagine a world in which full determination is possible, but it would be one without subjects, without a history or future. It would, in short, be nothing. This is Slavoj Žižek's point when he discusses the divided character of the subject – a division that I have read through the tension between self and other as well as between biology and culture. Žižek's more general point is that these divisions are not simply surpassable limitations of a finite subject but cracks in a reality that renders it non-totalizable. Neither this "incompleteness" nor its manifestation in the figure of the subject is guaranteed in a metaphysical sense – that is to say, there is no external necessity that underwrites them: they are simply functions of the fact that there is something rather than the nothingness of total determination. As Žižek (2018) puts it: "the ultimate division of the subject is not between this and that, between something and something, but between something and nothing."

The recognition of inconsistency or internal contradiction provides an opening for critical reflection but does not necessarily inspire or compel it – there is plenty of evidence that we live in ongoing states of contradiction. The goal of outlining an argument like the one traced in this book is to offer an interpretive frame for contemporary experience. As automated information and communication systems proliferate in the coming years, there will be ample opportunity for exploring the pathologies of preemption, framelessness, and environmentality. These biases permeate the cascade of developments in the automated media sector: data gathered by

smart speakers can be used to adjust insurance premiums; information collected by pregnancy apps is sold to employers who can use it to predict the likelihood of complications that extend parental leave; Fitbit-style devices track employees throughout the course of their day; image classification systems are used to identify potential criminals and monitor student and employee attentiveness; and so on. These systems will shape our world, not necessarily because they are demonstrably more accurate or societally optimal, but because they align with intersecting imperatives of efficiency, control, and cost containment. The promise of automation is driven, in part, by convenience, writ large, but it is also a function of the cost of human information processing in the context of new forms of interdependence enabled by high-speed, global communication networks. The "crisis of control" (Beniger 1999) associated with the contemporary information society is reflexive: communication networks are increasingly faced with the challenges posed by managing the dramatic increase in message speed and volume they enable. At the same time, "informatization" is framed as a response to the limits of both human and mechanical processes. Mechanized transport addressed the fact that humans and animals can only move so fast. Automated media address the fact that humans can only think and communicate so fast. Humans are the remaining bottleneck in the systems they have created, so they are working on technologies of self-displacement. This holds true in the realm of consumption as well as production – hence the search for ways to automate the consumption process via, for example, subscription consumption services. As Shoshana Zuboff puts it, "it is no longer enough to automate information flows about us; the goal now is to automate us" (2019, 25). Her insight into contemporary capitalism echoes Horkheimer and Adorno's mid-20th century critique of instrumental reason: "Thought is reified as an autonomous, automatic process, aping the machine it has itself produced, so that it can finally be replaced by the machine" (19).

The array of pressures that drive the automation of our information and communication systems is, in other words, formidable enough to overcome theoretical concerns and logical contradictions. The wager of this book's argument, then, is that these contradictions will continue to manifest themselves in practical ways that demand confrontation. The additional wager is that these manifestations are interconnected – that they form part of a totality that remains, nonetheless, fractured and inconsistent, and thus non-amenable to automated data-driven solutions. The international rise of right-wing populism, our collective failure to address the global threat of climate change, and the ongoing inability of democratic institutions to respond meaningfully all provide a backdrop for the arguments developed in the preceding pages. Information and communication lie at the heart of any society's ability to govern itself, and the contemporary media landscape is characterized by a toxic brew of unbridled commercialism, neoliberal deregulation, data-driven

forms of manipulation and experimentation, and, relatedly, the widespread collapse of the conditions for civic life.

Countering these combined forces will be a formidable, seemingly impossible task, and it is likely that it will take an actual, rather than an impending, catastrophe to muster the collective will to do so. Douglas Rushkoff's (2019) analysis in *Team Human* is on target: that the resources for addressing the pathologies of automated media and the society they have helped spawn lie in the human capacity for communion and service to others – however maligned these values may have become in broad sectors of society. In the face of our technologically facilitated solipsism flamed by the cold, blue, glow of a billion screens, we will have to recover an understanding that, as Rushkoff puts it, "The individual is actualized through the community. Only service to others gives us the opportunity to experience autonomy and belonging at the same time" (2019, 95). The current tendency is in precisely the opposite direction: automated curation systems circulate content that traces the disintegration of the shared set of meanings and dispositions that reproduce community, both imagined and concrete. It is no coincidence that much of this content highlights manifestations of the decimation of civic life, ranging from anti-vaxxer propaganda to the ongoing violent attacks on sites of community and communion: schools and places of worship.

The return of formerly debunked beliefs, such as flat-Earthism, is accompanied by that of once vanquished diseases such as measles and polio. In many cases, these are the combined symptoms of the erosion of collective belief systems and social institutions that protected us from having to repeat the same mistakes over again. The development of automated media anticipates a new form of disaster: one succinctly formulated by Slavoj Žižek in cautioning against the "stupidity" of computers (although the more apt formulation would be *our* stupidity about computers): "The problem is not that they will know everything we think … No: they will totally misread us and that then will become the information for the social big Other" – the information used to make decisions about us, to shape our information environment, and to anticipate our desires (2018). We may try to deform ourselves to fit our machine-generated doppelgangers – the digitally generated personae that are more like us than we ourselves are. Perhaps the calculated allure of computer-curated content designed to saturate and modulate the rhythms of our thought and activity will assist in this process. However, we will have to confront the fact that as we offload the social and political functions of judgment onto automated infrastructures, these will come to reflect and encode the priorities of the people who develop and control them, congealing political priorities and power relations into non-transparent code running on costly embedded infrastructures.

This is not only a recipe for highly unaccountable, centralized control; it also erodes resources for resisting technologically concentrated power. If one of the signal achievements of human society has been the use of language and culture

as a means of "binding time"– learning from and reflecting upon the experience of others both past and present (Rushkoff 2019, 19) – "operationalism" displaces the reflexive role of language with functional efficacy. If a fleeting expression during a job interview predicts subsequent job performance, there is no reason to consider or explain why. The machine rejoinder to the human query is that of the impatient parent: "because!" As the machines acquire greater leverage, decisions become increasingly inexplicable – or at least the function of explanation is diminished and devalued. As our automated information-processing systems take over the time-binding function described by Rushkoff, humans are left to follow the dictates of latter-day oracles.

It is customary to conclude such a critical analysis on a note of hope – a gesture toward the possibility that things could be otherwise and better. In the absence of such a possibility, the warrant for critique disappears. Perhaps more pointedly, renouncing such a moment would amount to a form of complicity with the logic of pre-emption, insofar as this dispenses with the historical truth that there is always a future irreducible to the present. I am tempted to locate this moment in the immanent deadlocks and contradictions that, I have argued, characterize the aim of total information collection and automated prediction. But these contradictions are endlessly productive – the inability of prediction to fully determine human desire will be taken as further impetus to increase data collection and processing power. The failure of surveillance to displace trust will result in both the ongoing denigration of social trust and calls for more powerful monitoring and tracking systems. The erosion of civic dispositions abetted by the material practices of digital solipsism will facilitate the compensatory offloading of sociality onto automated communication systems. The attempt to operationalize human communication – to deprive it of its structural, social unconscious by sidestepping language altogether – will correspond to the drive to render our machine world hyper-communicative on our behalf. These self-fueling cycles will likely require a resuscitated and reconfigured effort to combine universalism and individuality while avoiding the pathologies of both. These pathologies suggest there is no going back. Nor is there any prospect of recapturing the role played by "legacy" communication systems and the institutions that helped shape them. Nostalgia for both is futile and retrograde. We will have to invent new ways for configuring the systems at our disposal in socially constructive ways, and this will entail reconstructing society from the ground up – a prospect that all too often means building on the ruins.

Note

1 I am indebted to Sijun Shen for drawing my attention to this phenomenon.

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