

Chapter 2

Theorizing Drones and Droning Theory

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Overview

This chapter uses the figure of the drone to unpack the emerging logics of ubiquitous, always-on sensor-based monitoring. The following argument is not about drones, per se, but about what might be described as drone logic: the deployment of ubiquitous, always-on networked sensors for the purposes of automated data collection, processing, and response. It treats the drone as an avatar of the emerging logic of increasingly passive interactivity. Thus, the intended contribution of the chapter is to reframe theoretical approaches to interactivity in the digital era. The goal of this reframing is to take into account the ways in which interactivity is becoming passive, distributed, mobile, and reliant upon quasi-centralized infrastructures for data sharing, processing, and deployment. The figure of the drone is useful because it offers a highly visible and controversial example of the deployment of networked surveillance and quasi-automated response and suggests the ways in which the implementation of drone logic across disparate spheres of social practice partakes of the military-inflected rationalization of everyday life. The chapter is called drone *theory* because it outlines a theoretical approach to the social implications of the “droning” of daily interactions and because it simultaneously critiques recent developments in theory that, wittingly or not, align themselves with the forms of knowledge anticipated by automated forms of information collection, processing, and response. Thus, the chapter offers a social-theoretical critique of the embrace of drone logic in both the practical and theoretical realms. The goal is to intervene in the formation in which theoretical and technological developments align themselves in ways that have significant and troubling implications for questions of power, control, and democracy.

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Abstracting away from the figure of the “unmanned” flying device, the notion of drone logic, broadly construed, unfolds the shared characteristics of distributed forms of networked data collection and response. The promise of the drone as hyperefficient information technology is fourfold—it extends and multiplies the reach of the senses, it saturates the times and spaces in which sensing takes place (entire cities can be photographed 24-h a day), it automates the sensemaking process, and it tends toward the automation of response (see, for example, Sharkey 2011). In this regard, the figure of the drone comes increasingly to characterize the operation of interactivity in an era of proliferating, distributed, digital devices. We might describe it as contributing to the increasing automation of both interaction and response. If interaction implies some kind of conscious contribution to a relationship, encounter, or exchange, the “droning” of interactivity anticipates a world in which feedback is passively collected, analyzed, and responded to. It also anticipates a world in which the database aspires to capture all of reality: drone logic implies the ongoing unfolding of new distributed, always-on sensors to capture new data dimensions. In this regard, the mapping of the territory and its construction go hand in hand. The term “drone” is suggestive in this context, since it connotes a continuous background presence—as distinct from other forms of more targeted and discrete forms of interactivity. The forms of interactivity described here have typically been associated with so-called “ubiquitous computing” and “the internet of things”—but neither of these formulations invoke the increasingly instrumental and infrastructure-intensive character of automated data collection and response. Such formulations typically invoke the notion of a world of “smart” objects that collect information from their interactions and are able to respond accordingly. The figure of the drone, by contrast, necessarily invokes the underlying and quasi-centralized “data-link”—the costly information network behind the interface, and the entities that can access and operate it. Here again, the history of the term is suggestive, insofar as the “drone” nickname traces one of its roots back to US Admiral William Stanley’s name for remote-control aircraft used for target practice. He developed the planes after seeing a demonstration of the British Navy’s DH 82B Queen Bee—another automated craft—and, in homage to this innovation, decided to call the remote-control planes he developed for the US Navy “drones”—not least because, as one account put it, “a drone could only function when controlled by an operator on the ground or in a ‘mother’ plane” (Zimmer 2013). Thus, the notion of drone logic invokes the infrastructures associated with drone deployment—and the political and economic implications of control over these infrastructures.

The following sections offer a rethinking of the operation of interactivity against the background of the figure of the drone. In this regard, the chapter intervenes in ongoing theorizations of digital media and their current state of development. To do so, it explores a series of case studies that consider the deployment of drone logic in a range of spheres of social practice. Each case study adds to a consideration of the dimensions and implications of this logic. (The issues raised, for example, by the generation of huge amounts of data that must be processed automatically, the attempt to make humans more “efficient” by finding ways of automating their own sensory and data-analysis processes, and so on.) Along the way, the chapter devel-

ops the beginnings of a critical, theoretical approach to the shared logics of “droning.” In particular, it pits what might be described as a psychoanalytically informed dialectical approach against strands of a so-called new materialism that ends up replicating and reinforcing drone logics. With this in mind, the chapter outlines an alternative critical theorization of the assumptions and practices that underwrite the drone model of interactivity.

Enter the Dronosphere

As billions and even trillions of sensors are placed around the globe and in our atmosphere, we will gain the ability to literally hear our world’s ‘heartbeat.’
(Cisco Systems 2014)

What would you say if I told you that in fifteen years, the FBI or local police might be able to identify you from a distance—perhaps from a drone hovering far out of sight of the human eye—using a technique called Eulerian Video Magnification and your biometric heart rate information? In other words, by reading your heart rate—unique to you—from a distance?
(Sosadmin 2012)

What might it mean to think of non-drone apparatuses through the lens of drone logic? First of all, it means considering the ways in which distributed probe networks automate interactivity and result in large amounts of data that are centrally processed. For example, Microsoft researchers are developing an application that monitors smartphone use in order to infer the users’ “mood” (and thus to more appropriately target advertising; LiKimWa 2012). Apparently, patterns of phone use, messaging, and Internet usage correlate unintentionally with the users expressed mood. Smartphones can serve, in other words, as mobile distributed mood sensors to collect data about users that they do not even realize is being generated. In a similar development, the US Homeland Security Advanced Research Projects Administration is developing an early warning system for chemical attack that would rely on sensors embedded in all smartphones: These sensors could “sniff” the surrounding air and automatically relay data about toxic substances to the program’s headquarters—allowing for perpetual monitoring and rapid response (Department of Homeland Security 2013). We might describe both of these examples as partaking of the logic of “droning” insofar as they:

1. Extend the reach, scale, and scope of the senses.
2. Saturate the times and spaces being monitored. (The sensors are always on, and are distributed wherever members of the phone-equipped populace goes.)
3. Automate data collection.
4. Allow for automated response: Alarms are triggered, and response protocols are thereby initiated. This tendency toward the automation of response is one of the defining aspects of drone logic, insofar as the subtraction of the human element from the decision loop follows naturally from the automation of data processing. In the military arena, the goal of rapid response leads to the automation of targeting and strike. In the case of early warning chemical sensors, the goal is

similar to increase response speed. In the example of Microsoft's "MoodScope," targeted strikes take the form of customized, custom-timed advertising.

With these and a range of other examples in mind, we might start to make a case for the fruitfulness of using the figure of the drone as a means of interpreting and critiquing the emerging "sensor society"—in which the so-called "internet of things" comes to function as a distributed surveillant assemblage (Haggerty and Ericson 2000). Smart "things," from cars to toasters come to serve as probes, providing detailed information passively collected about their users and environments. This chapter abstracts away from the figure of the military drone to consider the imperatives that it addresses. It also situates the figure of the drone within the broader context of the goals of risk assessment, data management, and information processing associated with developments in the realms of commerce, sociality, and national security. The seeds of automation were sowed in what Ian Hacking calls the "avalanche of numbers" that accompanied the development of biopolitical strategies for managing populations in the nineteenth century (282). Indeed Foucault and Ewald's (2003) early formulation of biopolitics outlined the familiar connection between logics of securitization, the collection of data, and the management of "aleatory" forms of risk. As this avalanche grows, strategies for managing and interpreting the numbers come to rely increasingly on machine forms of data storage and processing and, inevitably, decision-making.

Drone Media

If we are to think of the drone as a medium—and I would argue that it is—then we might also consider the implications of the "droning" of the media. Here, I am invoking the ways in which media platforms not customarily associated with the figure of the drone qua "unmanned" aircraft come to serve as automated and distributed probes. For example, in a talk about digital media and monitoring, Eben Moglen succinctly described the monitoring model upon which the social media platform Twitter is based: "Every time you tweet a URL, Twitter is . . . arranging that anybody who clicks on that URL will be monitored by Twitter as they read. You are not only helping people know what's on the Web, but also helping Twitter to watch everybody you helped read, so they read over everybody's shoulder everything you recommend" (2014). Twitter is a communication medium that doubles as monitoring mechanism and a centralized probe. Twitter manifests its interface in multiple, mobile-distributed access points: smartphones, laptops, and electronic tablets. But each of these access points collects information about users and automatically captures, sorts, and stores them. Twitter is also what might be described as a metadata probe—it tracks information about which stories are receiving the most circulation. All forms of social media that allow for the sharing of stories, tweets, and other blip-memes operate similarly; they serve as both distribution platforms and distributed monitoring systems.

In this regard, we might describe Twitter as one model for the droning of communication media. As a communication medium it enables unique forms of one-to-many communication; as a probe it partakes of the logics of always-on data collection, analysis, and response. Of course, is it not alone—smartphones double as probe platforms, upon which new forms of sensors and new sensing techniques can be grafted. Drawing on the model of drone swarms (Bürkle et al. 2011), we might describe such devices and their supporting infrastructures as constituting probe networks. Interactive video games, for example, now incorporate technologies for viewing players and reading their facial expressions and biometric indicators. E-readers collect increasingly detailed information about user behavior: How long is spent on each page, which words are looked up or highlighted, whether and when a book is finished, which pages are revisited, and so on. Digital video recorders collect a growing range of metadata about user behavior and relay these back to providers who mine them for exploitable patterns.

Gmail is a form of probe that illustrates the logic associated with the droning of the media: in particular, the metadatification of everything insofar as all information comes to double as information about itself. Our emails are not read for their content (in the sense that the computer does not try to “understand” our thoughts) but for actionable patterns: Does the occurrence of a particular word in a particular sequence correlate with an increased likelihood of clicking on a particular keyword in an advertisement? Does one’s pattern of email usage provide insight into other aspect of life? Does a particular viewing pattern indicate a greater likelihood of responding positively to a particular show (or to the advertisements embedded in it)? Such questions are not ancillary or incidental to the “primary” communicative function of online platforms like Google and Facebook—rather they lie at the heart of the emerging data-driven business model of the online economy.

Facebook and Google become valuable precisely because of the way in which they function as “always-on” probes able to gather and organize new forms of data that promise to lend themselves to a growing array of applications. These are probes that, like drones, are also apparatuses of “dedifferentiation”: One of the hallmarks of the drone is its overcoming of distinctions between the battlefield and other (times and) spaces—or, more properly speaking, the drone enfolds all spaces within that of combat (Sharkey 2011). The drone patrols entire cities and regions and it documents not just exceptional moments, but the rhythms of daily life. In expanding the battlefield indefinitely (Packer and Reeves 2013), it proposes always-on monitoring and perpetual threat as a response to the mobilization of ubiquitous risk. The military figure of the drone has, in recent years, come to signify one side of so-called asymmetric warfare. The expansion of the battlefield it envisions corresponds to the multiplication of vectors of threat associated with the so-called war on terror. If the threat of attack is no longer limited to military personnel or targets, then all times and spaces fall within the reach of defense operations. If non-state actors engage in hostilities then the globe becomes the battlefield. The centralized drone network and the distributed terrorist network from two sides of the process of dedifferentiation between battlefield and home space; civilian and combatant. Drones are, in this context, dedifferentiating machines.

Our networked communications similarly fail to recognize or respect conventional divisions in the time and space of daily life: people text and surf, call and update at home and at work, in sites both public and private, in trains, buses, airports, and while walking down the street. Checking one's smartphone and email can be the last thing one does at night and the first upon rising. Even the pattern of "downtime" generates potentially valuable information about users. All times and spaces are enfolded into the competition: for information, speed, efficiency—combat by other means. The communication probes launched by applications like Facebook and Twitter weave themselves into the fabric of daily life. At the same time, the form and volume of data collection necessitates new ways of handling and using information—themes taken up in the following sections.

Drone Commerce

One of the hallmarks of the forms of dedifferentiation characteristic of "droning" is the ease with which military and commercial applications blend into one another and inform one another. There is nothing new about this connection—marketers have long availed themselves of various military technologies, and the military has played a crucial role in the development of media (c.f. Kittler 2010; Virilio 1989). However, the pace of the exchange and the conceptual blurring between targeting and target marketing, between surveillance and forecasting, and between various forms of risk management is unprecedented. The CIA bases its information processing on Google and then commandeers the data it generates (Hunt 2012; Greenwald 2014). With respect to drone logic, we might trace the connection between the data overload generated by distributed sensors and the proliferating forms of information to which consumers are subjected. Cutting through the clutter, as it were, becomes a key concern in both realms. Consider the example of a Defense Advanced Research Projects Agency (DARPA)-funded research project designed to maximize the ability of human viewers to respond to visual data. The so-called Cortically-Coupled Vision System uses electroencephalography (EEG) to determine when viewers' brains respond to particular images—prior to their conscious registration of this response (Gerson et al. 2006). That is, brains are treated as sensors that, when connected to a monitoring infrastructure, allow viewers "to find meaningful objects in mountains of images up to 10 times faster than they normally could" (Discover 2011). The problem faced by the military is that new drones generate imagery faster than humans can make sense of them (Discover 2011). The resulting search for more efficient ways of processing visual imagery underwrites attempts to, on the one hand, develop forms of automated processing of visual imagery and, on the other, to "drone" humans by turning their brains into automated sensors decoupled from conscious processes. The human brain becomes a more efficient probe than human viewers. Unsurprisingly, the shift from military to consumer applications is

immediate: The project's director Paul Sajda emphasizes the potential benefits of his military research project for civilians:

A miniaturized, wireless version of the device might be used to tag consumer items or even specialty shops that catch your fancy as you walk down a city street. Just a quick glance at a dress in a window, for instance, might elicit a neural firing pattern sufficient to register with the system. A program could then offer up nearby stores selling similar items or shops you might want to investigate. (Discover 2011)

The logic here is familiar: Your own behavior provides cues to your preferences that can be captured and put to use. In Sajda's example, the human brain is turned into a desire-detecting sensor. Suggestively, the implicit connection is made between the proliferation of surveillance data and that of commercial messaging: As one enthusiastic account puts it, "If you have ever felt overwhelmed by a multitude of choices—say, 10,000 items in an online catalog—this brain-boosting invention is for you" (Discover 2011). Consumers are analogized to intelligence workers—forced to make sense of the avalanche of data available to them, and thus to avail themselves (and subject themselves) to the logic of automated data processing. More generally, then, the use of distributed probes for commerce works not just to rationalize the production process, but also the consumption, promotion, and distribution network—indeed, it further dedifferentiates the distinctions between them: consumption contributes to the production process in new and significant ways, distribution networks are redoubled for the purposes of promotion; interactive promotional strategies feed into the production process, and so on. The end result is an ongoing process of data collection that embraces the twin logics of retrospection and prospection: the goal of both creating as complete an archive as possible and of using this as a means of projecting into the future.

Drone Security

In 2014, residents of Compton, California learned that their city had been the subject of a 2012 experiment in total video monitoring 2 years ago. The LA County Sheriff's Department contracted with a private surveillance company to test an airborne camera that monitored, "the entire city 24-hours a day using high resolution video of everything that happened inside the 10-square-mile municipality" (Friedersdorf 2014). For 48 h, everything in the city was tracked. As the city's privacy consultant put it, "We literally watched all of Compton during the times that we were flying, so we could zoom in anywhere within the city of Compton and follow cars and see people" (Friedersdorf 2014). The imagery was archived, so that if a crime had been reported during that period, the police could go back and retrieve the video and zoom in on the location of the crime. The demonstration envisioned the possibility of comprehensive real-time monitoring and archiving: the digital redoubling of space and time that would make it possible to reconstruct the past—and, through the power of data analytics—predict future threats. The surging interest in so-called predictive policing relies on this possibility—the more data that can be

collected, the greater the reach and power of the algorithms that can be used to preemptively allocate policing power (c.f. McCue 2006). The realm of security is the native habitat of the drone, with its military provenance, its strategy of asymmetry, and its direct link to surveillance technology.

The Compton experiment illustrated the drive toward “diachronic omniscience” (Parks 2001) that characterizes drone logic. The fantasy of the drone is to cover all spaces all of the time: hence, the drive toward more high-resolution cameras with broader ranges of field carried by devices that can stay in the air as long as possible. Consider for example, the US Air Force’s so-called Gorgon Stare project, which uses multiple cameras on a remote control aircraft “to transmit live video images of physical movement across an entire town” (Nakashima and Whitlock 2011). In keeping with drone logic more generally the shift is from individualized forms of targeting to treating the entire population/space as the target. As one military official put it in a news account, “With the new tool, analysts will no longer have to guess where to point the camera. ...Gorgon Stare will be looking at a whole city, so there will be no way for the adversary to know what we’re looking at, and we can see everything” (Nakashima and Whitlock 2011). The further, logically related goal, is that of drone autonomy, envisioned by The DARPA, “CODE” project (Collaborative Operations in Denied Environments), which anticipates the creation of smart swarms of drones. Or, as the agency describes it, the goal is “autonomy and inter-platform collaboration ... Using collaboration algorithms, [drones] can provide services to each other, such as geo-locating targets with long-distance sensors and guiding less-capable systems within their sensor range, ... [and] protecting each other by overwhelming defenses and other stratagems” (RT.com 2014).

In keeping with the generalization of the logic of prosthetic extension, DARPA has a host of related projects, including an expansion of its underwater drone project and the development of robot soldiers and silent vehicles, that is, it envisions the drone colonization of land, sea, and air—diachronic and synchronic omniscience (RT.com 2014).

From the perspective of “defense” and security, then, drone logic envisions the coupling of comprehensive surveillance with perpetual low-grade warfare enabled by structural asymmetry. The prosthetic distancing enabled by the drone promises to lower the cost of perpetual “low-intensity” conflict for the dominant party by removing fighters from the scene of battle. (However, the promise may well fall short of the reality, given the forms of anger, frustration, and desperation that ongoing long-distance attacks generate among the victims.) This structural asymmetry is characteristic of drone logic more generally. When it comes to surveillance, for example, there is the asymmetry between those who are perpetually and comprehensively monitored and those whose monitoring activities remain covert, nontransparent, and remote as they disappear into the weave of the fabric of daily life. It is perhaps a telling sign of the time that in publicity materials for the latest Superman movie it is revealed that Batman is semiretired, “controlling drones from the Batcave” (Caruso 2013).

Drone logic, in other words, fulfils the fantasy of preemption by other means (Bogard 1996). If one information age fantasy is the perfect anticipation of future

events via forms of data modeling that allow threats to be identified and addressed before they materialize, the drone fantasy envisions forms of confrontation without threat. This is perhaps why there is an unfolding logic of internal versus external uses of drones for the purposes of security and policing. The “war on terror” version of drone warfare relies on the identification of external enemies at a distance: threats that can be defused “over there” before they arrive here, on “our” shores. In this version of drone warfare, the generalized ubiquitous threat that materializes at a distance is complemented by the image of a safe home space from which this threat can be handled: a sheltered shipping container in a Nevada suburb where life can proceed as normal.

By contrast, the notion of drone security envisions a domestic space already permeated by threat: one in which areas like Compton need to be photographed 24 h a day in order to record patterns of activity for the purposes of preemption or reconstruction. Perhaps this is why the figure of the drone attracts so much attention; it embodies the ways in which a militarized asymmetry comes to characterize domestic security operations. Hence, the convergence of critique from the left and the libertarian right around the issue of drone security. The high-profile libertarian US Senator Rand Paul has made a point of mobilizing the figure of the drone as avatar of totalitarian control, insisting that the US attorney general answer whether or not he thinks it would be legal for the president to “authorize ... a drone strike, against a U.S. citizen on U.S. soil?” (Epps 2013). As recent (and less recent) events in the USA indicate, various policing entities already routinely exercise lethal power, sometimes against US citizens who do not pose any immediate threat—the invocation of the image of the drone adds the dimensions of remoteness and automation. These latter dimensions (coupled with ubiquity) represent the novel aspect of drone logic.

Drone Pedagogy

The range of examples explored in this and previous sections suggests the portability of “drone logic.” In similar terms, one of the many productive insights of Foucault’s work on the panopticon was his abstraction of its logic away from particular applications, buildings, or uses. He was interested in the panopticon as “the diagram of a mechanism of power reduced to its ideal form” (1977, p. 198). Thus, he argues that, “its functioning, abstracted from any obstacle, resistance or friction, must be represented as a pure architectural and optical system: it is in fact a figure of political technology that may and must be detached from any specific use” (1977, p. 198). This detachment of course, made it possible to rearticulate the technology to a wide range of disciplinary uses in a range of enclosures (the school, the workplace, the prison, etc.) and beyond. Drone logic invokes a similar diagram of power—one in which logics of remote sensing, networking, distributed ubiquity, mobility, and automation coalesce. As in the case of the panopticon, drone logic operates in the school as well as the workplace, and the more flexible and expansive spaces of

digital interactive enclosures (smart cities or homes, mobile phone networks, Wi-Fi hotspots, and the internet). The tools for learning are fast becoming networked, sensorized, and automated. As educational materials become interactive, every student action will be redoubled in the database. Describing a Rupert-Murdoch-funded initiative to develop educational programming for electronic tablets, one press account captures the tone of the droning of the schools:

Soon, games that know what a student has read ... will be able to strategically sprinkle a particular word in his path based on how many times the research says you need to see a new word in order to learn it. In a few years ... advances like “gaze tracking” and measurement of pupil dilation “will revolutionize” the gauging of cognitive response by making it possible to determine exactly what students are reacting to on the screen. (Rotella 2013)

The drone architecture in the schools then will be composed of networked portable, customizable, personalized tablets that serve as the converged platform for educational activities—reading, writing, viewing, listening, communicating, and so on. The result will be a constant flow of data upstream that feeds into automated forms of response—and, of course, the creation of comprehensive and increasingly complex student profiles:

This growing stream of information, which can be analyzed down to individual keystrokes, yields a picture that will eventually progress in complexity from, say, a list of words a student looks up to a profile of metacognitive skills—like the ability to concentrate—and in time to a full-blown portrait of a developing mind. In theory, each student will generate the intellectual equivalent of a fantastically detailed medical chart. (Rotella 2013)

Such a chart will have a variety of potential purposes—useful not just for educators but for medical and mental health professionals, for college admissions, for employers, and, of course, for marketers. Murdoch’s company, Amplify, insists (for the moment) that the data will remain solely in the hands of individual school districts (Rotella 2013). As it expands of course, and comes to be stored in “the cloud” it is sure to become available—at least in anonymized forms, to commercial data-warehousing companies. It could also become a very tempting asset for cash-strapped schools: Why not sell anonymized student data, if this can help recover some portion of the huge sums invested in “tabletizing” the schools?

The development of such technology is allegedly undertaken with an eye to providing guidance to teachers, but the logic of automation is irresistible: There is no way any individual teacher will be able to make sense of the huge amounts of data generated by the constant use of an interactive device by a class full of students. Of course the sorting, sensemaking, and response apparatus will be automated—just like the game that determine which words a student needs to work on and then shapes the reading curriculum to feature those words. There are surely some wonderful uses for tablets in the schools—but the droning of the schools is another matter. As pedagogy becomes automated, bypassing teachers themselves (realizing a recurring fantasy of the political right’s ongoing campaign against public school teachers), it comes to be structured by the imperatives of those who craft the algorithms and mine the data. The operation of the algorithm becomes increasingly opaque in direct relation to the increasing amounts of data captured and processed.

If Amplify succeeds, Rupert Murdoch's private, commercial, media empire will control not only a vast swath of the news to which people are exposed but also the algorithms that shape the educational priorities and activities of a nation's schools. The paradox of drone logic is that individual specification and customization—the alleged push beyond the mass society model—coincides with increasingly powerful and efficient forms of centralization. Indeed, “total” individualization can only be provided by automated, networked devices: It would be impossible to have a teacher for each student, but not a tablet. And the tablet only operates in the mode of individuated instruction (as opposed to individuated use) to the extent that the process is remotely, centrally, and automatically managed. The interface is nothing without the infrastructure: This is the central lesson of drone logic. Or, as one Air Force general put it, “It’s about the datalink, stupid” (Bowden 2013). A lone, disconnected tablet is like an untethered drone. It can perhaps record data, but it cannot share it, mine the combined data drove, and generate an automated response based on these aggregated findings. Droning, appropriately enough, is about the massification of individuation.

Drone Sociality

In keeping with the notion of “drone logic” as a portable model, we might ask the question regarding what happens to sociality itself when it is read through the lens of the drone. One possible answer lies in the example of an app called “NameTag” that received a lot of media attention in 2013 when it was marketed as the “first facial recognition app for Google Glass” (<http://www.nametag.ws/>). It portrayed itself as a kind of date-detecting drone: an application that would scan a room for faces that it could then link to social networking sites in order to assess compatibility with the user. As one breathless headline put it, “Could Google Glass Find Your Dream Date?” (ignoring the fact that Google, as of now, has not approved any app that uses facial recognition to identify anyone but the user; Prigg and Thornhill 2014). The app, in other words, transposes automated monitoring, detection, and profiling (associated with, say, the signature strike), into the realm of social life. Moreover, the app transforms Glass into a threat detection device: “Its makers claim it can even check the sex offenders register before deciding on a match” (Prigg and Thornhill 2014). The app caters to the lure of the missed opportunity. In a world in which we pass mysterious and perhaps eligible strangers every day on the street or at a party, “Why leave meeting amazing people up to chance? Don’t miss out on the opportunity to connect with others who share your passions!” (<http://www.nametag.ws/>). The flip side of ubiquitous threat is ubiquitous opportunity. The technology offers to make the process of meeting compatible people much more efficient, continuing the logic of devices like LoveGety and exporting the search-and-sort function of online dating into the offline world (or, rather, folding the offline world into the online one, via Google Glass).

Drone sociality relies on automated opportunity identification and threat protection; it would take too long to interview everyone in a crowded room/street/party and make them fill out OKCupid style questionnaires. But if they have already done so online, NameTag can do the work of identifying them and looking them up for the user. The model is a familiar one in an era of information glut—when the (perceived) field of choices expands dramatically, automated forms of sorting and recommendation take over. The dependence of Web users on Google has become so taken-for-granted as to be almost overlooked—without a browser, the tremendous amounts of information available online would remain all but inaccessible. The same might be said about the expanding field of media content available to users—once upon a time a viewer could sort through the available channels without assistance. But with thousands of movies available on Netflix, users need some kind of automated or externally generated sorting and recommendation system. When it comes to control over information, organization is the new content. Whereas once upon a time, the attempt to limit access to particular kinds of information or knowledge depended on restricting or censoring content, in the era of infoglut, it depends on controlling the algorithms that search, sort, and recommend.

Drone sociality transposes this logic into the realm of social life. It is already deeply entrenched in social networking sites like Facebook which organize our exposure to messages from “friends” for us, deciding which are most likely to further the goals of the site (to get us to spend more time on Facebook, to post more information about ourselves, and to participate in online activities that contribute to the company’s bottom line). The company’s announcement of a smartphone app that would activate the user’s microphone to sample the sonic environment and automatically detect (and share) information about what music or TV is playing in the immediate vicinity highlights the droning of Facebook (Hill 2014). The app would treat smartphones as distributed content probes, scanning the environment for information about users and relaying this not just to friends, but, of course, to the company’s database of information about the listening and viewing habits of its users. More generally, sites like Facebook already partake of drone logic, insofar as they serve as ubiquitous, networked, automated forms of information capture and response. They do so in a double register: For users they serve as automated data collection devices about the sentiments and activities of “friends,” whereas for their owners they operate as distributed probes gathering an increasingly comprehensive map of the social landscape: of patterns of interaction, communication, and affiliation (as well as of movement, media consumption habits, and an expanding array of information). Of course, these probes generate more data than would be humanly possible to make sense of, requiring automated forms of sensemaking and response. In this regard, such sites face the common problem of drone monitoring: how to manage the growing array of data made available by increasingly pervasive forms of information capture in a growing range of dimensions. Users, interestingly, face a similar problem—and the development of apps like NameTag indicate how social life comes to be viewed through the same lens as other forms of information retrieval and processing. NameTag promises to open up the field of opportunity for social relations in the way that the Web opened up the range of available information. With

the help of the app, any face in the crowd can potentially be de-anonymized and vetted without the time and effort associated with introductions, conversation, and other forms of human contact that, paradoxically seem to gunk up the promise of friction-free sociality.

The invocation of logics of targeting and risk detection into social relationships is not particularly novel and is at least as old as their treatment in market terms. However, the droning of social life enacted by social networking sites and applications of various kinds (including dating and hookup apps like Grindr and Tinder) updates these logics for the digital era, in which the automation and digitization allows it to expand in scope and to permeate time and space in new ways. A person sitting on a park bench can use Tinder to search for potential dates up to 99 miles away. For the hypothetical user of NameTag, anyone within sight is a potential match. The increasing reliance upon the algorithm—and the automated forms of sorting and organization it enables—endows it with novel forms of power associated not so much with the content of the information being shared, but with the structure of sharing itself. As social life migrates onto online platforms, its dimensions become reliant on automated forms of sorting and response. Facebook notoriously uses algorithms to shape the information streams users receive from online contacts to meet its particular sets of priorities (fostering forms of engagement that contribute to its economic model). Along the way, of course, it engages in ongoing forms of experimentation to determine how tweaking the algorithm might influence user behavior. The 2014 revelation of an experiment designed to determine whether changing the news feed good influence users' moods generated some concern and controversy—but this was just a quick peek at the forms of ongoing experimentation that such sites do as a matter of course. As OkCupid's co-founder put it in a blog post after the Facebook revelations: "We experiment on human beings ... But guess what, everybody: if you use the Internet, you're the subject of hundreds of experiments at any given time, on every site. That's how websites work" (Rudder 2014). And those with the power to craft the online environment and capture the information it generates stand to benefit from forms of monitoring and manipulation that are largely invisible to users. In this regard, every Web site and all networked communication devices operate in the drone dimension, all serving as probes that surreptitiously captured detail information that is collected, aggregated, and analyzed in order to provide automated forms of customized response. All the ingredients are there: distributed, always-on, ubiquitous monitoring devices, infrastructures for data collection and response, and automated forms of information processing and response.

Drone Politics

Of course, any site of potential power is also of interest in the political sphere. Thus, political consultants are jumping on the big data bandwagon in order to figure out how best to influence potential voters, contributors, or supporters in automated data-driven ways. As one somewhat retro scenario outlined in a political consulting trade magazine put it,

The next frontier is embedding computer chips in direct mail pieces. No need to enter a web address or take a picture with your cell phone to access content ... The computer chip will then match tested messaging to the user's profile and online history, generating a personalized message for the user. (Mack and Henry 2012)

In this scenario, the letter itself serves as part of a probe swarm, linking a particular recipient with other datasets, from online behavior to marketing history, to voting history: Whatever is available in the database. The goal, unsurprisingly, is to provide an automated customized appeal to a known target: "For example, if the user does web searches on education, the computer chip will calculate the dollar amount her neighborhood schools will cut if the wrong candidate gets elected in her state or district. If the user is a thirty-something female with two young children, the picture on the front of the website will be the same" (Mack and Henry 2012).

Viewed from the perspective of data miners, the broad sweep of interactive applications and devices serve as probes for inferring political preferences and proclivities even when these are not directly expressed. One group of researchers, for example, claims to be able to use Twitter and other social networking sites to infer a user's political leanings, which the researchers describe as "latent content": "even when limited or no self-authored data is available, language from friends, retweets and user mention communications provide sufficient evidence for prediction." (Volkova et al. 2014). Indeed, the researchers found that, using Twitter, "political preference can often be predicted using roughly 100 tweets" (Volkova et al. 2014). The music streaming company Pandora has developed algorithms to predict political preferences based on musical taste: "It can deconstruct users' song preferences to predict their political party of choice" (Singer 2014). The company says that it "does not analyze listeners' attitudes to individual political issues like abortion or fracking" (Singer 2014)—at least for the moment. However, a computer researcher, mulling the power of Pandora as a probe, speculated that, "looking at music choices, you could probably predict with high accuracy a person's worldview ... You might be able to predict people's stance on issues like gun control or the environment" (Singer 2014). This possibility, of course, is what makes the automated data collection associated with networked media use, so interesting to political consultants and strategists seeking new ways to target and influence voters. Drone politics treats any and all information that can be collected about voters as potentially useful for inferential purposes, that is, for excavating information about preferences and possible points of influence. The looming disconnect between user expectations and the intentions of data miners is constituted by the difference between conscious forms of self-disclosure (I will let Pandora know which songs I like) and inferential data mining (We can figure out what political issues are important to you from your musical tastes). If the goal of drone surveillance is the redoubling of everyday life in the form of a data profile, every aspect of life is rendered productive for a growing array of uses: threat detection, marketing, and influence. Every activity that takes place within reach of some element in a drone assemblage finds itself at the business end of a sensor. The ambition of the network incorporates the fantasy of the drone: 24/7 coverage: sleepless sensing and sensemaking—a certain gaplessness. With this goal in mind, we might move beyond the notion of drone politics as

yet another instantiation of the application of drone logic: A notion leading to the consideration of the ways in which political consultants, like marketers, enlist data collection and data mining to more effectively target and influence key voters and constituencies. The larger question here regards what the implicit politics of drone logic itself—that is, in what ways does this logic have political effects, construed in the sense of a broader concern with questions of control and governance.

A consideration of drone politics at this somewhat more general level suggests the following themes:

1. Drone logic augurs an era of the automation of influence, in the sense that customizing and targeting necessarily become the product of automated processes of data collection, analysis, and response. A politician can only tailor a message within the constraints imposed by the ability to absorb, understand, and personally implement knowledge about a voter base. Drone logic imagines the possibility of perfect specification: at the limit, a customized message for every inbox.
2. Drone logic only individualizes through the lens of the aggregate. Ultimately, it is not interested in individuals per se, but only in the patterns of influence that emerge from upstream data collection and downstream targeting of influence. The hallmark of the drone attack is the so-called “signature strike”—that is, the attack based on a data-generated profile, rather than on positive identification. As one news account puts it, “The term ‘signature strike’ is used to distinguish strikes conducted against individuals who ‘match a pre-identified “signature” of behavior that the U.S. links to militant activity,’ rather than targeting a specific person.” (Greenfield 2013). Much the same might be said of the broader forms of drone targeting described in previous sections: The signature pattern is more important for the decision-making process than is personal identification.
3. In the drone era, sorting and mapping are the new forms of scarcity. Information is plentiful: It is control over the ability to make sense of this data that becomes the source of power. Thus, logistical media like search engines, algorithms, and other organizational platforms become central to the ability to make information useful. Without a good search engine, the huge amounts of information available online become useless. Much the same might be said of the troves of data accumulated by companies like Facebook, Google, and Twitter.
4. In drone logic, the process of automation tends toward the obliteration of what it relies upon. The goal is to surpass not only the human limitations on sensing and sensemaking, but on response time, and response specificity. The paradox is a familiar one: The whole system depends on the data generated by a category of raw material (humans) that it seeks to surpass. What makes the system possible at all is what “gums it up”—serving as the last remaining bit of resistance to the instantaneity of a feedback loop spiraling faster and faster.

Drone Knowledge

Perhaps the most important political aspect of drone logic is the form of knowledge it ushers in: What might be described as a post-referential, post-explanatory, and pragmatism. In the account I have been offering here, drone logic is inseparable from automated forms of data processing: that is, ubiquitous, networked, always-on sensors generate too much information to be handled by humans. Data processing at this scale in turn generates forms of knowledge that are, as one account puts it, “too big to know” (Weinberger 2011)—that is, when they are working as planned, they represent the complex interactions of large numbers of variables that are too complex to render in the form of written or spoken hypotheses or explanations. The patterns are emergent—they are a product of the process itself, and their reliability is simply a function of how robust they remain over time (as calculated using historical data and predictive analytics). Cybernetic control, in its drone manifestation evinces its roots in targeting and prediction.

Against this background we might reconsider the ways in which relatively recent developments in theory anticipate and reinforce drone logic. I am tempted to describe these forms of knowledge, disparate as they may seem, as partaking of drone logic, and hence as forms of “drone theory.” By this term I mean to designate theoretical approaches that push in the post-explanatory, post-discursive, and, in some respects, post-human direction. Perhaps unsurprisingly these approaches tend to ally themselves with an allegedly resurgent materialism (albeit a decidedly non-dialectical one). That is, they push beyond the realm of “discourse” and language to study “things,” evincing an interest in “material” histories, “material” cultures, and new “materialisms” of one kind or another. It is not difficult to discern in these approaches an echo of the high-profile data scientist Alex Pentland’s admonition to pay attention not to what people say but to what they do (Eggers 2014)—and even more broadly, to what things do (as being not discontinuous with what people do)—or, what human-thing assemblages do.

In treating language as one more set of objects to be scanned, analyzed, and responded to in automated ways, drone logic participates in what might be described as the metadatification of language. When Google scans and analyzes messages, for example, it transforms the content into data *about* the content: A word in a message is not read for its communicative import to a receiver, but is registered as a fact about a particular communicative act—at a particular time and in a particular location, person A included the words “trip” and “Paris” in a message, so perhaps this person might be a good target for an advertisement for hotels or restaurants in Paris (for example). Certainly the data processing is becoming increasingly sophisticated, but again the goal is not to derive interpretations of the content, but rather to align data about messages with data about responses.

This process of “metadatification”—whereby a message is reconfigured into data about itself—comes to stand as the post-ideological or post-textual moment taken to its logical conclusion. That is, once the notion of a containable, interpretable, and transmissible “dominant” meaning (or meanings) is deconstructed beyond

recognition—what we are left with is the circulation of affects, and eventually, from an instrumental point of view, their effects.

In the wake of what might be called the mistrust of signification—that is, the debunking of an ideological register over and above or otherwise distinct from an affective register, it is not particularly surprising that one of the recent tendencies embraced by post-discursive approaches to the media is toward the analysis of the circulation of affects rather than that of meanings, content, or representations. Such movements tend to fashion themselves as anti-discursive in their rejection of the linguistic turn's ostensibly surpassed focus on representation and cognition and toward bodies (and things) in their materiality (rather than their signification). Karen Barad, whose theory of "Agential Realism" has been influential in the development of "new materialist" approaches that have been taken up in media studies (and digital media studies in particular) argues, 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. (2003, p. 804)

Unsurprisingly, in its antipathy to reading ("no humans read your email") Google might well agree with this anti-anthropocentric formulation (and drone-friendly logic).

In the same vein, one of the provocateurs of so-called object-oriented ontology expresses a disdain for the distractions of language as only a video game aficionado could: "When we spend all of our time reading and writing words ... we miss opportunities to visit the great outdoors" (Bogost 2012, p. 90).

A different, but perhaps not unrelated tendency is also manifested in the growing recent interest in German-inflected medium theory, where the influence of Friedrich Kittler looms large. As Jeremy Packer puts it, Kittler's work represents a "cold-turkey cure for hermeneutic and ideological fixation" (2013, p. 295). There is a certain affinity between the post-human commitments that surface in "new materialist" approaches and the fact that, as John Durham Peters puts it (in part of his introduction to Kittler's *Optical Media* titled "This is Not Cultural Studies") the German theorist, "has no use for the category of 'the human' or 'experience'" (Kittler 2010, p. 5). For him the conditions of the latter are subordinated to core media processes in a particular historical period: the collection, storage, and processing of data. The virtue of such an approach, according to Packer, is that it addresses a shift in the way digital media operate—a shift that he describes in distinctly logistical terms: "digital media power is first and foremost epistemological, not ideological. It is computational" (2013, p. 297). We might say much the same of drone power: it is post-ideological and post-discursive. Drones do not monitor ideology, they track sequences of correlation as proxies for chains of affect and effect. Even a "drone" analysis of text bypasses the register of "meaning" proper to seek out those sequences of words that correlate with responsiveness to particular influences and behaviors. In this regard, drone theory amounts to a kind of post-theory that amounts to what Chris Anderson describes as "the end of theory" ushered in by the advent of

big data: “Out with every theory of human behavior, from linguistics to sociology ... Who knows why people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity. With enough data, the numbers speak for themselves” (2008). Like Anderson, Packer draws on Google’s data mining prowess as a reference point for his analysis of what this chapter describes as the drone logic of automated monitoring and response:

Google’s computations are not content-oriented in the manner that advertising agencies or critical scholars are. Rather, the effect is the content. The only thing that matters are effects—did someone initiate financial data flows, spend time, consume, click, or conform? Further, the only measurable quantity is digital data. Google doesn’t and couldn’t measure ideology. (2013, p. 298)

After all “no humans read your email.”

In this regard it is worth asking, with Alex Galloway, “Why, within the current renaissance of research in continental philosophy, is there a coincidence between the structure of ontological systems and the structure of the most highly evolved technologies of post-Fordist capitalism? ... Why, in short, is there a coincidence between today’s ontologies and the software of big business?” (2013, p. 347). Admittedly, the various strands of post-cultural theory referenced above (new materialism and affect theory, object oriented ontology, and German medium theory) have some very significant differences, but they partake to various degrees in countering the linguistic/discursive turn. It is not difficult to discern certain affinities between tendencies in these approaches and a “datalogical” turn more generally—that is, a growing interest in what automated forms of information processing can reveal about the object formerly known as “content.” The attempt to get data to “speak for itself” parallels the appeal to a post-hermeneutic approach to the (vibrantly) “material”—and a precognitive approach to the effects mobilized by the circulation of affect.

In keeping with the post-human ethos, data miners are not particularly interested in interpretive narratives of human intentionality. In the great “democracy of things” represented by the database, data about air pressure, broken windows, and the number of daylight hours commingle with the more distinctly human statistics about poverty and abuse. They are all endowed with a role in the formation of potentially useful patterns from the data—and thus treated as contributors to the monitored outcomes, whether these be crime rates, purchase volumes, catastrophic events, the circulation of diseases, and so on. The multiplication of variables and the automaticity of the algorithm displace the roles of interpretation and comprehension—the data are not so much symbols that need to be understood as they are inputs that need to be sorted. The patterns generated by the database are not explanatory, but actionable. The goal is not to unearth the depths of significance, but to accumulate enough raw material to allow surface patterns to emerge. Humans take their place—not necessarily a central one, and not necessarily in the distinctive role as subjects—within the growing menagerie of data about inanimate objects, forces, interactions, flora, and fauna. We might describe this as the perspective of the drone: a description of drone experience—the experience anticipated and aped by drone theory.

While the resurgent focus on the significance of the material, the biological and technological has much to contribute to an understanding of the operation of emerging media forms and practices (perhaps not least because of the affinity noted by Galloway), their attempt to bypass or background the discursive dimension poses its own set of political concerns. Perhaps the defining one is the combination of an unfolding recognition of the complexity of networks of interaction with a correlative leveling tendency (all parties to the interaction become subsumed to its overall effects). Consider, for example, the substance of Jane Bennett's (2009) version of "vibrant" materialism, in which simple narratives of causality are displaced by the recognition of the constantly unfolding network of contributors to any event or outcome. These go far beyond the human "agents" and include the material properties and affordances of any of an expanding array of participants. A power blackout, for example, is not simply the outcome of human activity, but of a range of "very active and powerful nonhumans: electrons, trees, wind, electromagnetic fields" (2009, p. 47). The logic is both indisputable and indefinitely expandable (in ways that are familiar to older versions of materialism): The winds themselves are outcomes of a variety of "actors," (the rotating earth, the sun's activity, and so on) as are the material properties of the wood of which trees are composed, and on and on.

The result, suggestively, is that the "agent" is the *outcome* and not the cause of a particular "assemblage." (To transpose this into communicative terms, the message is the effect, as Packer suggests.) The corollary is that subjective notions of intention are subsumed by the assemblage: "an intention is like a pebble thrown into a pond or an electrical current sent through a wire or network: it vibrates and merges with other currents, to affect and be affected" (Bennett 2009, p. 32). Such a formulation does not simply disperse or distribute agency, it also reassembles it in the form of the "agentic capacity" of the assemblage—what Bennett describes as "the dynamic force emanating from a spatiotemporal configuration rather than from any particular element in it" (Bennett 2009, p. 34). The message is the effect, and the effect is, in a sense, de-narrativized (the only narrative that could adequately encompass the infinitely expanding horizon of contributing agents is that available to a ubiquitous, distributed, all sensing drone network). Indeed, the only understanding and accounting of such an assemblage would be that which is too big to know.

Taken to its post-human limit the drone perspective amounts to a kind of view from nowhere—and hence a resurgent idealism, despite the materialist posture. And the view from nowhere has a tendency to align itself a form of undifferentiated pluralism or imagined harmony that, wittingly or not, replicates the portrayal of the market as the most *natural* of cultural assemblages. Barad's ethical injunction is perhaps compelling, in general terms: "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" (2007, p. 396). Whence the notion of a unified "it" or "us"—and the underlying assumption of the possibility that everything encompassed therein might flourish together (nuclear power plants and humans? Carbon combustion devices and oxygen breathing creatures? Flesh-eating bacteria and limbs? Capitalist and proletariat).

The fantasy of drone politics and the theory that underwrites it is that it might be either possible or desirable to permanently bracket the cultural, as in the complementary trajectories of, on the one hand, the forms of automated tracking and sensemaking that dispense with the need for comprehension and, on the other, the analysis of assemblages in their infinite complexity (a process that necessarily tends toward and will likely come to privilege automation—as in some strands of the digital humanities). It is perhaps not surprising that even in the humanities there has been a proliferation of grant requests to fund the hardware and software that allow for the automated analysis of large numbers of texts, ranging from historical bodies of literature to Twitter feeds. The goal here, in all of its post-representational glory, is to gain some kind of efficient “knowledge” without having to read, Google-style. The impulse resonates with that of automated data mining for security purposes: the generation of suspects that has nothing to do with the interpretation of individual narratives, with posited causal interpretations, but simply with patterns of interactions over time (the signature strike). Action can be taken without any interpretive understanding of why—without “reading,” as it were.

There is an historical logic to the advent of what I am calling drone theory: on the one hand, it aligns itself with recent developments in other knowledge spheres—those which are coming to rely increasingly upon emerging automated processes. At the same time, it addresses the challenges posed by the interpretive impasses associated with discourse-oriented approaches. In this regard, it partakes of what might be described as the neo-pragmatism that seems to unite various strands of post-metanarrative theory while simultaneously eliding the realm of the subconscious, desire, and psychoanalytic subject. These are also, perhaps not surprisingly, the blind spots of the correlational logic of data mining and analytics, which do not seek to reconstruct subjects or parse their motivations, conscious or otherwise. When the data speaks for itself, the subject need not. The term “drone,” with its connotations of asexual reproduction, is suggestive in this regard. For what both theoretical and practical versions of drone thinking elide is the relationship between language, the subconscious, and desire. Post-humanist thought of the materialist variety outlined above remains, in this regard, both post-discursive and, necessarily, postpsychoanalytic. Drone thought is asexual in the sense that it seeks to bypass the deadlock of the symbolic—whose defining feature is, as Slavoj Žižek (2011) argues, the nonexistence of the sexual relationship. The deadlock of the real, he argues, is “inscribed in the very core of human sexuality: ‘There is no sexual relationship.’ Human sexuality is marked by an irreducible failure, sexual difference is the antagonism of the two sexual positions between which there is no common denominator” (p. 65). Perhaps the clearest example of the resultant form of false pluralism—pluralism under duress (to invoke Adorno’s notion of “reconciliation under duress”) is the uncanny recurrence of harmony in the form of the assemblage—that is, the implicit disavowal of the type of structuring deadlock that interests Žižek (and that he associates, of course, with capitalism). In such analyses, the assemblage is the only remaining element of structure—and it is neither a causal nor an explanatory structure. Description can delve beneath the level of the assemblage—its elements can be accounted for, but the notion of a fundamental structuring deadlock within

the assemblage remains foreign to the analysis. How else to account for Barad's imagery of "the world's vitality" and its shared flourishing with "us"? There may be interactions that cancel one another out, or result in one element overwhelming another—but no deadlocks or contradictions running like fault lines through these various assemblages. There may be split subjects, but there are no split assemblages. Perhaps the challenge posed by the disconcerting complementarity between these variants of post-humanist materialism and what I have been calling "drone theory" is to narrativize the post-narrative turn—to tell a story about why it might have come into being and what purposes it might serve; after all, try as it might, it has not (yet) wrested itself from the narrative logic it eschews.

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