Technological Modes of Governance: Beyond Private and Public Realms

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Debates on technologies of surveillance tend to contrast threats to *privacy* with *public* good – that is, safer environment or better customer service – that results from well-intended applications of such technologies. The contrast of private and public realms is also used by some to oppose the rapidly developing technological protections of intellectual property on the Internet, as some conceive the Internet in terms of a commons where laws of private property, and thus, surveillance, should be minimal. I attempt to take the issues of surveillance and intellectual property beyond the private and public binary, arguing that new technological developments should be looked at – not as threats to privacy – but as possible ways to limit many possibilities and as structures of power (including corporate power) that are increasingly embedded in technology itself.

To attain greater theoretical clarity on this issue, I distinguish three modes of power – *bureaucratic*, *panoptic*, and *algocratic* – and emphasize the salient features of each in terms of three different mechanisms of power: *office*, *surveillance*, and *code* respectively. The logic of algocratic forms of governance is explored methodically to demonstrate how

algocracy (i.e., rule of the algorithm) differs from other forms. I emphasize the need not only to understand the role of programming languages and code in the emerging complex of technological governance, but also to bring it to people's vocabulary for any meaningful dialogue and action to take place.

The structure of this paper is as follows: first, I discuss prevailing issues surrounding surveillance and threats to privacy and show how our understanding of privacy is embroiled in the troublesome binary of *private* and *public* spheres, discussing how this binary, with reference to intellectual property, is often employed to both defend and deny privacy rights. Second, to attain greater theoretical rigor and clarity, I discuss the nature of property, especially intellectual property, questioning certain commonly held notions of property. I propose to analyze property, not in terms of possessions but of power, developing a tripartite view of power relations in terms of bureaucratic, panoptic and algocratic power.

Privacy and Surveillance

Practices of surveillance tend to arouse concerns for privacy. A range of civil rights activism centers on threats to personal privacy through systems of surveillance. Privacy International (PI), for example, is a human rights group formed, in its own words, "as a watchdog on surveillance by governments and corporations…PI has conducted campaigns throughout the world on issues ranging from wiretapping and national security activities, to ID cards, video surveillance, data matching, police information systems, and medical privacy" (PI 2002). As surveillance devices have proliferated in recent years, personal privacy seems threatened not only by public and private institutions but also by private individuals. Small spy cameras and internet-based systems are increasingly

bought by individuals to keep a watch on other individuals. Business products are openly promoted for private surveillance:

> Spector Professional Edition is the newest version of the world's best selling internet monitoring and spy software. Spector Pro automatically takes hundreds of snapshots every hour, very much like a surveillance camera. Spector Pro also includes TRUE email capture (SMTP and web-based email), TRUE chat and instant messenger capture, and now includes the world's best Key Logger…With Spector Pro, you will be able to SEE in exact detail what your spouse, kids and employees have been doing online and offline (Spector 2002).

Such software and cameras are promoted to keep a watch on activities of spouse, babysitters, the elderly, and home and business employees. This trend is not confined to the West. "Mini spy cameras are the latest consumer 'must-have' in southern China, as spouses try to keep tabs on partners and shops keep an eye on theft" (BBC 2002), giving rise to serious worries about privacy.

Advocates of such technologies, however, argue that there are many legitimate uses of surveillance technologies. Children's lives may in fact be made safer by monitoring their environment against abuses and hazards. Video-based surveillance may lead to safer homes and streets, lower crime rates and disciplined traffic. While a hidden camera found in the women's toilet at Cambridge University (BBC 2001) was considered an invasion of privacy, closed circuit television cameras installed by a school in its toilets to stop smoking and graffiti (BBC 1999) could be considered as an attempt to create a "safe" environment for younger children. Often, the debate on surveillance seems to converge on such a balancing act between privacy and public safety. But the question of privacy is more complicated than portrayed in the media.

Private and Public Realms: the Binary Opposition and Intellectual Property

The debate on *public* versus *private* realms clearly relies on the operation of a binary opposition, an entrenched but problematic way of thinking. In recent years,

poststructuralist scholars (e.g., Derrida 1976) have unmasked and criticized the hidden assumptions behind the use of binary oppositions or pairs where one part of the binary pair is always more important than the other. In the binary pair good/evil, for example, good is "marked" as positive and evil is subordinated to good. All binary pairs – e.g., light/dark, masculine/feminine, day/night, presence/absence, right/left, private/public – tend to operate in this fashion; in liberal thought the first term is valued over the second. A binary opposition functions within a system of thought as an algebraic equation of "a equals not-b" and two terms cannot exist without reference to the other – light (as presence) is defined as the absence of darkness. This problem cannot be solved by merely reversing the hierarchies implied in the binary pair, as the solution will still participate in a system of reversed privileges. By transposing the private/public binary, discourses of communist regimes, for instance, did not overcome the binary opposition per se; they only succeeded in reversing the privileges attending public and private realms.

When implicated in different discourses, the opposition of private/public becomes more muddled. While the market is included in the private sphere in relation to the state, it is also considered a threat to the private sphere of the individual and family. An example of a hypothetical, yet widely prevalent, mode of intellectual property protection will help underscore this rhetorical contradiction. If a company places a cookie[1] in a Web user's computer to monitor compliance with the terms and conditions of its copyrighted material on the web, the company at once *invades* and *protects* privacy. It *invades* the privacy of the user whose browsing behavior is placed under surveillance and it *protects*

[1] Cookies are messages given to a Web browser by a Web server. The browser stores the message as a text file in the hard drive of the user. The message is then sent back to the server each time the browser requests a page from the server. The main purpose of cookies is to identify users and possibly prepare customized Web pages for them.

private copyrighted property, which is threatened by individual users. Such confusion also exists at the very heart of patents and copyrights, two major methods of intellectual property protection. Patents and copyrights, being driven by what James Boyle (1996) calls the romantic notion of authorship, are granted in theory to the inventor or author as a reward for her intellectual contribution. In reality, such rights to intellectual property are enjoyed by corporations or publishers who provided the infrastructure to the inventor or the author. Such works of authorship thus legally belong to the publishing company, which could be a publicly-owned corporation in possession of the author's private property. Clearly, it is difficult to attain a serious understanding of intellectual property from within the paradigm of private and public spheres.

I propose to understand property relations as power relations with a view to developing analytical tools to think and talk about intellectual property. I will later analyze the problem of surveillance in terms not of "privacy" but of pressures of "normality."

Property and Power

All property relations are in an important sense relations of power. Rights of ownership are the rights to "deny" access to others. The power to exclude others – often enforced by the state – is the basic idea behind property rights. With the rise of what Weber called legal rational rule, power relations that sustain practices of ownership are ensured by the bureaucratic power of the sate.

One may argue that "property" connotes a little more than power relations. After all, a house or an island owned by a person as property are concrete tangible things. At closer scrutiny, however, what converts the house or island into property are power relations. In

the absence of laws or juridical institutions that constitute the island as property and endow the owner exclude with exclusive rights, the island is merely an island, not property. Houses, islands, cars and all forms of property maintain their utility and properties whether or not they are conceived as *property*. In short, property relations are nothing but a set of power relations often organized through the state. There is no such thing as property apart from the power relations, and the term "property" derives its meaning by being used to convey a particular set of power relations.

This understanding will help us solve some persistent problems and paradoxes that have plague intellectual property debates, as much confusion can be avoided by eschewing the conflation of property with the thing or goods.[2] The concept of intellectual property presents enormous problems to common conceptions and practices of property in several ways. The first problem relates to what Boyle (1996) terms the infinite nature of intellectual property. Consisting chiefly of information, intellectual property, unlike tangible property, is an "infinite good…a gift that can be given without making the giver any poorer. I explain Pythagoras' theorem to you, or teach you how to work out the area of the circle. Afterward, I seem no poorer in the sense that we both have the knowledge" (Boyle 1996, pp. 30-31). Thus, it is argued that exclusive rights to intellectual property can seriously threaten the public good. By my definition, however, property is not identical with a "thing" and therefore, it is neither finite nor infinite. As a set of power relations, it has the capacity to make a thing both "finite" and "infinite," depending on the legal framework. Property is merely a property of a set of relations. The struggle to control infinitely reproducible information, like music or programming code or genetic

[2] A brief discussion of various theories of property and their merits and shortcomings vis-à-vis the present suggestion will be taken up in the final draft

sequence, is merely a struggle to extend to them the same kind of power relations organized around finite goods. In the following sections, I shall analyze three modes of power and governance that inform, protect, and thus constitute a variety of property: bureaucratic power, panoptic power and algocratic power.

Bureaucratic Power

All modern relations of property are ensured and enforced by a bureaucratic state. In the early 20th century, the most important analysis of the bureaucratization of the state came from Max Weber (1978). Within the framework of his ideal type of legal-rational authority, he systematically studied the rise of modern bureaucratic state, not as a sovereign body, but as a new form of power and governance. For Weber, bureaucracy as such represents an "efficient" ideal-typical apparatus characterized by an abstract regularity of the exercise of authority centered on formal rationality. It is marked by authority relations that erode old modes of trust and social hierarchies of estate *(ständ)* and honor, replacing them with "rational techniques" of domination. Weber situates bureaucracy within his theory of power, domination, and legitimacy, where domination is legitimized on the basis of "legal-rational rules" in contrast to "tradition" or "charisma."

One mode of Weber's theory construction is to formulate ideal types of purified action orientations. In order to explain legal-rational domination, he shows how legal-rational action orientation emerged from a struggle against monarchical absolutism in the Continental Europe, a struggle that denied the legitimacy of any law based on precedent rather than statute (Bendix 1960). Thus, in legal-rational governance, people who occupy

positions of authority cannot act as personal rulers, and the people who obey legal rational authority are not "subjects;" they are "citizens" who obey the "law" rather than the official who enforces it. Modern bureaucracy, as opposed to the earlier bureaucracies of Egypt, China and medieval Europe, reflects the imperatives of such legal-rationality, which is "formal" and not "substantive." By "formal", Weber implies a juridical formalism, where procedures of a lawsuit emerge as a peaceful contest according to fixed "rules of the game." For instance, if one cannot afford an expense to document a piece of information relevant to the lawsuit, one may be forced to surrender certain rights to which one is legally entitled. Purely "substantive" and ethical considerations for justice cave in to the care for the predictability of its "formal" procedures.

The development of modern rational bureaucracy, being dependent on formal procedures, a money economy, the free market, and the expansion of administration, is characterized by written rules in a hierarchy of specialized official positions; impersonal offices that must be clearly distinguishable from incumbents and their private life and property; and recruitment based on qualifications, and not on personal will of the master or leader. Weber's discussion of bureaucracy is embedded in the dual context of the legal-rational mode of domination and the technical imperatives of formal rationality that require an efficient, methodical calculation and refinement of means to achieve an end.

Many scholars have questioned Weber's idea of the technical superiority of bureaucracy, showing how actual bureaucracies are fraught with informal structures and conflicting interests of subgroups. They also dispute the notion that formal rules are efficient. Bureaucratic formal rules could be dysfunctional and often produce unintended

consequences, as the rules become ends in themselves rather than means to ends (Merton 1949; Selznick 1980). Some go as far as to argue that informal practices are more efficient than rigid adherence to inflexible formal rules (Blau 1967) and that formal rules may be employed by members of bureaucracies to pursue their own interests in opposition to official goals (Crozier 1967).

The post-Weberian research mentioned above, despite its successes, has misunderstood Weber's approach, reducing the wider context of what Habermas (1984) calls the "bureaucratization of the lifeworld" to narrow concerns for organizational efficiency. In fact, the question of "efficiency" as an object of analysis is itself made possible by discourses of instrumental rationality, which is institutionalized in actual bureaucracies. Weber does acknowledge that "...the bureaucratic apparatus also can, and indeed does, create certain definite impediments for the discharge of business in a manner best adapted to the individuality of each case..." (Weber 1978, 974-75). To say that Weber did not describe "real life" is to have an impoverished notion of what is counted as real life. He appeared to be more concerned with the imperatives of formal rationality that produce a whole series of effects in the real by acting as grids for the perception and evaluation of things. To Weber, for instance, the discretionary acts of modern bureaucratic officials are vastly different from the discretionary acts in earlier forms of administration, because in modern bureaucracy, even the discretionary acts require an appeal to, and evaluation of, impersonal ends; one cannot openly confess personal favors and arbitrariness (Bendix 1960). This orientation toward impersonal rules transforms the real world in significant ways. The question of significance for my analysis is not whether Weber's ideal type was accurate; rather, whether there are other modes of power that may complement Weber's

diagnosis of modern organizational forms. I will briefly discuss Michel Foucault's (1979) notion of Panoptic forms of disciplinary power as another dimension of power relations that also inform property relations. This discussion will also help distinguish the notion of algocratic power from both bureaucratic and panoptic forms of power.

Panoptic Power

Panoptic power, in short, is governance by continuous surveillance. Foucault borrows the concept of *Panopticon* from Jeremy Bentham's eighteenth century design of prison architecture in which all the cells, arranged in a circular fashion around a central tower, were made visible from the tower top:

> By the effect of backlighting, one can observe from the tower, standing precisely against the light, the small captive shadows in the cell of the periphery. They are like so many cages, so many small theatres, in which each actor is alone, perfectly individualized and constantly visible. The panoptic mechanism…reverses the principle of the dungeon; or rather of its three functions – to enclose, to deprive of light and to hide – it preserves only the first and eliminates the other two. Full lighting and the eye of a supervisor capture better than darkness, which ultimately protected. Visibility is a trap (Foucault 1979, p. 200-01).

Foucault uses the example of the Panopticon to highlight deeper transformations in systems of power in modern societies, reflected in the tendency toward surveillance. One of the major effects of the Panopticon was to "induce in the inmate a state of conscious and permanent visibility that assures the automatic functioning of power," Foucault (1979, 201) further explains,

> In view of this, Bentham laid down the principle that power should be visible and unverifiable. Visible: the inmate will constantly have before his eyes the tall outline

> of the central tower from which he is spied upon. Unverifiable: the inmate must never know whether he is being looked at at any moment; but he must be sure that he may always be so.

The principles of this mode of power, according to Foucault, have spread throughout the social body with generalized disciplinary effects. A gradual extension of such mechanisms to all social realms in the last three centuries have resulted in what he calls the "disciplinary society" with the primacy of cellular structures of temporary or permanent confinement. Therefore, it is not surprising that "prisons resemble factories, schools, barracks, hospitals, which all resemble prisons" (Foucault 1979, p. 228). We can easily extend his analysis of disciplinary effects of surveillance mechanisms to contemporary life. The growing prevalence of video cameras in shops, stores, and workplaces, and their use for disciplining the street traffic have the effects of inducing in people "a state of conscious and permanent visibility that assures the automatic functioning of power." These surveillance systems share such features as asymmetric visibility of the Panopticon, where the inmate is "totally seen, without ever seeing" and at the other end of power relations (in the central tower) "one sees everything without ever being seen" (Foucault 1979, p. 202). In the domain of intellectual property, surveillance is exercised not through camera-like devices; it is put into effect through computer technologies that record the behavior of the user for the same purpose. Combining tracking technologies with relatively invisible practices of what is called dataveillance, computers seem to have enhanced the power of surveillance to enforce and structure property relations.

Many copyright management systems employ computer-based surveillance for effective imposition of power relations to ensure property rights. For example, once access is granted to some copyrighted material on the Internet, the user – in order to ensure compliance – may be subjected to surveillance through transaction logging, and if necessary, accounting and billing for usage. There are a number of software systems known to be actively involved in protecting copyrighted material through dataveillance, including InfoBike, ELINOR, ERCOMS, ECOMATE, COPINET, EURILIA, FASTDOC, and others. Such monitoring software is commonly considered a threat to privacy, but what it in fact does is ensure conformity to "normal behavior." These surveillance systems implement the model of invisible authority and visible users. The new information systems can invisibly translate, record, and display the user's behavior, making it universally visible. As Shoshana Zuboff (1988) points out, information technologies not only *automate* operations (that is, replace the human body by technology to carry out similar processes); they also *informate* operations, that is, they also generate information about such operations (for example, by keeping a log of each and every step of a process). The generation of information about the subject's behavior has obvious disciplinary effects on the user. While the *gaze* of information systems is also a gaze of normality; it may not pose an immediate threat of being rebuked or discovered, but it is more universal as it freezes all activity for possible future scrutiny and thus tends to catch what is not framed as "normal" behavior. Logs of activity make escape a theoretical impossibility.

The phenomenon of the *gaze* or *look* is crucial to the exercise of panoptic power. Phenomenogically, Sartre (1966) has described the "look" as an attempt to control the

other's freedom. Being watched or being visible limits the possibility of different modes of being to a frame of reference established through existing power relations. Foucault's (1979) concept of "gaze" carries similar import. The *look* or *gaze* employed in surveillance systems is an instrumentally interested look. The panoptic *look* does not take place behind the back of social language; it carries defined expectations; scales against which one will be judged. The *look* distinguishes good from bad; therefore, it is important not only for punishment but also for reward. Asymmetric visibility thus emerges as an intrinsic aspect of panoptic power.

Both bureaucratic and panoptic forms of power derive their efficacy by what Weber would call formal rationality; that is, they transform certain "formal" aspects of governance whereby power no longer flows from persons; it is more and more embedded in rules, positions, architectures and devices. Algocratic power that I identify as a third mode of power also uses formal rationality, or rather, the pure reason of symbolic logic, to produce yet another set of effects. While bureaucracy signifies *rule of the office* and the Panopticon symbolizes *rule of the gaze*, algocracy exemplifies *rule of the code*.

Algocratic Power

Algocratic power, in contrast to both bureaucratic and panoptic power, is exercised neither by making people accept the authority of impersonal rules nor by surveillance. Instead, algocratic power is exercised by structuring possible forms of behavior without need for rule orientation. Under the algocratic mode of power, behavior is controlled not by telling the person not to engage in illegal behavior, nor necessarily by punishing the person for their failure, but by shaping an environment in which there are no alternatives

to acting as prescribed. For example, while filling in the "fields" on a computer, one cannot type in the wrong part of a form, or type the address where the phone number belongs. Field codes of software templates provide pre-existing channels that guide action in precise ways. Within algocratic analytical frame, power does not need legitimacy in the Weberian sense, because there are either no alternative routes or such routes are themselves pre-given and programmed. There is no comparison that can be used to de-legitimate authority. This is what I imply by *algocracy*, where authority is more and more embedded in technology itself, or more specifically, in the underlying code, rendering the hierarchical system of bureacratic power less useful. Contemporary forms of copyright management increasingly rely on algocratic modes of power embedded in software codes and templates, adding to the bureaucratic and panoptic systems of governance.

Armed with programming technologies, algocratic systems are able to not only point out the incorrect steps taken by the user, but also suggest at times the correct method to the ignorant user. Unlike the unlettered machines of the industrial age, the smart machine has the ability to communicate commands as an authority in addition to faithfully carrying out the commands of the user. The ability of the computer to assume the role of the controlling authority – apart from being the object of use – turns the unidirectional relationship with industrial machines on its head.

Below I will identify a set of factors that allow us to talk and think about algocracy as a distinctive mode of organizational governance.

[TABLE 1 ABOUT HERE]

Bureaucratic and panoptic forms of governance have never been confined to property relations alone. They have deeply influenced the general social structure as well. Just as bureaucracy reminds us of the bureaucratization of the lifeworld (Habermas 1984), and panoptic governance has come to populate our streets, homes and shops with surveillance devices, algocracy too extends beyond organizations, as the code directs a person's action operating automatic teller machines in a logical step-by-step approach and the code behind Internet transactions or phone support systems channels customer behavior along specific directions. Programming has emerged as a form of power that structures possible forms of action in a way that is different from bureaucratic and surveillance systems. The promised introduction of XML-based web services also points to a direction where software will no longer be sold as a "thing" to be purchased but as "code" that will provide various services to the user on demand. This transition is discussed among programmers as a shift from "products" to "productized services." Corporations that plan to provide such services expect not only greater profits, but also greater control over the whole process through algocratization of services and commodities, reducing the chance of software copying and sharing.

In the domain of intellectual property, code-based copy protection technologies have emerged as the basis of intense debate in U.S. Congress as well as Supreme Court. One problem with algocratic power is its ability to displace law in the realm of intellectual property, which is increasingly becoming digital in form. While copyright law requires the legal-rational rule adherence to respect the rights of copyrights holders, algocratic power represents built-in controls for access to the protected material. In view of various code-based technological controls proposed in the White Paper (Lehman 1995a) for

copyright management, Lessig (1999, p. 130) goes as far as to suggest that "the code displaces [copyright] law by codifying the rules, making them more efficient that they were just as rules," thereby generating specters of perfect control and monopoly while limiting fair use.

Conclusion

Before the advent of algocratic systems, the compliance of intellectual property laws was ensured chiefly through prohibition and the threat of force by the state. With the rise of algocracy, there is an increasing use of code-based systems to enforce property rights. Many suggestions made by the state itself, as in the White Paper (Lehman 1995b), can be captured as algocratic in nature: "The distribution of digital works can be regulated by controlling access to the source of copies of the works – information or data servers...Access control is affected through user identification and authentication procedures that deny access to unauthorized user to a server or to particular information on a server." There are a number of such suggestions that require a more fine-tuned understanding of algocracy as a new form of governance. Such algocratically algocratically enforced property relations include encryption techniques for scrambling data, digital signatures, steganography, and serial copy management systems. All this development point out not only the rise of a new analytically distinguishable mode of power, but also how property relations have entered an era where bureaucratically ensured property rights through contracts and licenses are progressively moving toward power relations maintained and managed by algorithms, and thus threaten to acquire an automatic and natural character.

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