

Dreams of Control at a Distance: Gender, Surveillance, and Social Control

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Modern surveillance systems operate upon masculine logics of disembodied control at a distance. As such, they artificially abstract bodies, identities, and interactions from social contexts in ways that both obscure and aggravate gender and other social inequalities. This article explores the gender dimensions of surveillance systems in several public domains: welfare, healthcare, and transportation. By exposing the dominant rationalities of such systems and critiquing the discourses that support them, one can challenge the supposed neutrality of such technologies and question the power relations to which they give rise. The goal of this article, therefore, is to introduce a new line of inquiry into gender and surveillance, one that perceives surveillance as operating on the level of abstraction but with embodied effects for women and men.

Keywords: surveillance; technology; gender; social control; space

What are the gender implications of modern surveillance technologies? Lately a great deal of attention has been given to abuses of surveillance systems by intelligence agencies in the United States (Associated Press, 2005; Gellman, 2005). Intrusive surveillance has been rhetorically framed by politicians and the media as a necessary trade-off for achieving national security (Monahan, 2006b). What these examples have brought to public attention is the pervasiveness of surveillance systems and practices. Rather than being restricted to video cameras, everyday surveillance depends upon vast databases of personal information, which are generated by our engagement with many information and communication systems: cell phones, credit cards, e-mail, Web surfing, global positioning systems, electronic medical records, frequent shopping cards, “smart cards” for accessing parking structures, buildings, or toll roads, and so on (Ball & Webster, 2003; Haggerty & Ericson, 2006; Lyon, 2003; Monahan, 2006c; Staples, 2000). The

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current climate requires an expansion of conceptual categories and empirical material to account for the oftentimes *postoptic* operations of gendered power in these new domains.

The research that has been done on video surveillance provides the groundwork for addressing gender issues with other surveillance technologies. The voyeuristic uses of video surveillance are not all that surprising: Usually men sit comfortably in control rooms where they monitor unsuspecting women—and others—from afar. Studies confirm that at least one in 10 women are watched by control room operators for voyeuristic reasons alone (Norris & Armstrong, 1997). One effect is what Hille Koskela (2000) has called a masculinization of space, whereby women in public and private spaces are increasingly scrutinized without necessarily achieving any additional protection from harassment or assault. Indeed, in some cases, it seems as if the bundling of cameras into popular devices like cellular phones enables new forms of uninvited scrutiny and objectification of women. One example of such practices occurred at my previous university where pictures are taken of female students, without their awareness or consent, and then placed on an Internet site for viewers from around the world to “rate” their sex appeal.

The voyeuristic uses of surveillance technologies are clearly troubling, especially as these technologies propagate throughout societies. Nonetheless, the gender implications of surveillance systems extend well beyond voyeurism, manifesting in radical new forms of disembodied social control. To perceive this expanded field of gender and surveillance, however, electronic surveillance must be understood broadly as technological systems that facilitate the control of people. This includes the host of data-generating and data-sorting systems for commercial transactions, communications, transportation, medical records, and so forth. Acknowledging the control potentials of data management expands the field for social analysis to reveal unfolding power relations in seemingly mundane technical activities. Across most public domains there are shifts underway to reduce social identities, mobilities, and practices to mere data that can be managed and sorted as abstractions (Strathern, 2000) without a clear understanding of the embodied power relations and social effects produced by those activities.

This article offers a theoretical exploration of the gender dimensions of surveillance systems in several public domains: welfare, healthcare, and transportation.¹ The primary argument is that modern surveillance systems operate upon logics of disembodied control at a distance. As such, they artificially abstract bodies, identities, and interactions from social contexts in ways that both obscure and aggravate gender and other social inequalities. By exposing the dominant rationalities of such systems and critiquing the discourses that support them, one can challenge the supposed neutrality of such technologies and question the power relations to which they give rise. Therefore, the goal of this article is to introduce a new line of inquiry into gender and surveillance, one that perceives surveillance as operating on the level of abstraction but with embodied effects for women and men.

Theoretical Orientation: Gender and Technology Design

My approach to surveillance is grounded in three conceptual categories of gender and technology design. I understand technologies to betray their gendered dimensions through (a) body discrimination, (b) *context or use discrimination*, and (c) discrimination by abstraction. These three areas definitely overlap and bleed together; so I introduce them here merely as heuristics for analysis. What they share in common is attention to issues of power, specifically how unequal power relations are reproduced and reinforced by technological means.

Body discrimination can be understood as technologies that simply are not designed with a full range of bodies in mind. These technologies privilege certain bodies—usually male, young, White, and able ones—over others. One example might include speech-recognition software, which has been very slow to accommodate women's voices, whereas it has excelled at deciphering male speech. Another example might be automobile air bags, which deploy at a height, velocity, and trajectory that cause more injuries to women than to their typical male counterparts (Jain, 1999). To varying degrees, many technologies, if not most, are like these: They are products designed better for use by men than by women; or, within their social contexts, they tend to empower men and disempower women. This is, in large part, a product of the frame of reference of technology designers, software developers, and engineers, most of whom are men designing with themselves in mind (Akrich, 1995; Oudshoorn, Rommes, & Stienstra, 2004). The speech-recognition software problem clearly fits into this explanatory framework because the people who happened to "be around" to test and debug the software were men. That the male body is taken as the standard and other bodies as exceptions is, of course, a product of androcentric philosophical traditions (Grosz, 1994), which are then reproduced by the technological artifacts and systems that mark women's bodies as *other* (Balsamo, 1996; Oudshoorn, 1999). This results in technologies with a certain valence against women, where the concept of valence accounts for the force of technologies to trigger certain predictable uses and outcomes (Bush, 1997).

Inquiry into context or use discrimination focuses attention on discrimination that is engendered by existing social contexts and/or institutional relations. Surveillance technologies fit neatly within this frame. Because almost all control room operators of video surveillance are men who are removed from the spaces they are monitoring, they tend to use the technologies in voyeuristic and particularistic ways. As Hille Koskela (2000, 2002) argued, this effectively masculinizes the spaces under observation because (a) video surveillance occurs in traditionally feminine spaces (e.g., of shopping, public transportation, etc.); (b) it serves as a hidden form of sexual harassment; and (c) unlike the physical presence of security personnel, video surveillance operators fail to detect or document verbal forms of sexual harassment that may be occurring in those spaces. When social contexts are already marked by sexist relations, then surveillance (and other) technologies tend to amplify those tensions and inequalities. Lorraine Bayard de Volo

(2003) wrote, for example, about the uses of surveillance to control the appearance and behavior of cocktail waitresses in casinos. The intention is to position waitresses as objects of desire for customers, by way of their dress and doting upon gamblers, and to keep them subordinate to the male bartenders and management.² Waitresses do resist, but cautiously and intelligently, otherwise bartenders will slow waitresses' orders down and their tips will suffer. R. Danielle Egan (2004) found a similar pattern with the use of surveillance in strip clubs to enforce control by male managers over female strippers, making certain that they do not cheat the system by taking unreported tips (usually for performing sexual acts). Finally, Jennifer Wesely and Emily Gaardner (2004) explained how the construction of women as vulnerable in public places such as outdoor recreational parks compels them to begrudgingly accept surveillance in exchange for the alleged promise of increased safety.

It should be noted that feminist scholars have fruitfully investigated many other technologies for their context or use discrimination encodings. Leslie Weisman (1992) argued that architecture and planning tend to codify sex inequalities in a "spatial caste system" of disconnected, sex-inscribed territories (e.g., home vs. office), leading to less value placed on work done by women and unequal mobilities between the sexes. In this vein, Ruth Schwartz Cowan (1983) and Judy Wajcman (1991) convincingly deconstructed myths of domestic technologies and public utility infrastructures, respectively, as clear symbols of progress. They find that although housework labor for women is not reduced, in part because of rising expectations for cleanliness, capitalist and patriarchal relations are reproduced by means of demarcating public and private spheres according to their respective gendered commodities. In a remarkable study of the development of the microwave oven, Cynthia Cockburn and Susan Ormrod (1993) revealed how unequal gender relations allow for the de-skilling of cooking and the blaming of women for microwave mishaps, whereas simultaneously affording a space for male, high-tech expertise in the traditionally feminine domain of the kitchen. Studies of context and use discrimination highlight the valence toward unequal power relations with the introduction of new technologies. Because technologies are underdetermined, meaning that they take on values from the context of their use, existing conditions of inequality inflect technologies and technological systems, reproducing unequal social orders (Monahan, 2005). This conclusion, however, does not discount in any way the many efforts of active appropriation by women (and men) to minimize the discriminatory effects of technologies in social contexts (Bray, 1997; Markens, Browner, & Preloran, 2003; Ong, 1991).

Discrimination by abstraction is probably the most controversial reading of technology and gender. By this concept, I mean the ways that technological systems, especially those that produce representations of data, strip away social context, leaving a disembodied and highly abstract depiction of the world and of what matters in it. The act of filtering out bodies and social contexts facilitates a kind of control at a distance that is the hallmark of modern surveillance systems

(Dubbeld, 2003; Woodward, 2003). In the process of producing abstract representations that can be monitored and controlled, however, social inequalities and experiences tend to drop out of the equation. Bodies become data. At the same time, although social contexts are abstracted away, inequalities are solidified and aggravated by means of their lack of representational presence. If inequalities, gender based or otherwise, are not represented in data, then it is difficult to address them, but that does not mean that they are not present.

Dreams of disembodied, sterile, and heroic control at a distance have deep roots in Western technoscience. Carolyn Merchant (1980) argued that the machine metaphor employed to describe the ordering of self, society, and cosmos during the scientific revolution led to a mechanized worldview that encouraged the exploitation of the natural world and, by relation, women. Mary Terrall (1995) added that in the 18th century science was further masculinized, through heroic expeditions, having the outcome of ensuring that women could only participate by being audience members. Finally, Londa Schiebinger (1989) observed that by the 19th century, gendered representations of science had dropped out altogether, leaving a supposedly pure and apolitical method of inquiry and knowledge accumulation. Given this historical process of the simultaneous subjection of nature and women, on one hand, and the erasure of gender in representations of science and technology, on the other, it is not surprising that scientific techniques, instruments, and methods of knowing would appear neutral today. To assert otherwise—that technoscience is value laden, political, and gendered masculine (Haraway, 1989, 1991, 1997)—rubs against the grain of centuries of institutional and cultural assertions to the contrary.

Surveillance technologies operate in this tradition. They still privilege sight, the primary sense of scientific inquiry, whether for the watching of people or for the monitoring and manipulation of databases. Michel Foucault (1977) famously introduced the specter of Betham's panopticon, or *all-seeing prison*, as a metaphor for how bodies could be disciplined and controlled throughout societies by means of the internalization of disciplinary structures. The rationalization and potential control of people and their activities becomes even more powerful, however, as information and communication systems become ubiquitous. Instead of everyone being subjected equally to the disciplinary gaze, we are now witnessing advanced "social sorting" made possible by electronic surveillance in all its forms (Gandy, 1993; Lyon, 2003). The case made by this article is that the methods of abstraction on which new surveillance systems are predicated are those in the spirit of the scientific revolution—the Enlightenment rationality of masculine control at a distance.

Domains of Everyday Surveillance

The sections that follow analyze how rationalities of disembodied abstraction and control at a distance permeate everyday surveillance systems in the domains

of welfare, healthcare, and transportation. These domains were chosen because they are primary arenas of public life that are accessed by a diverse range of people, yet where surveillance can be difficult to perceive, usually because it operates at the level of abstraction. Rather than simply being about people watching people, I understand surveillance to be about exercises of social control that are facilitated by technological systems of identification, monitoring, tracking, and data analysis. This framing of surveillance, therefore, includes systems that may not initially—or primarily—be intended as surveillant but nonetheless lend themselves to those uses or have those effects. Modern systems of technological surveillance share in common an ability to filter out social contexts and reduce social actors and practices to mere data that can be analyzed and sorted according to *objective* criteria. In other words, exercises of power are rendered invisible by nature of the supposed neutrality of technologies, such that the sociotechnical sorting of the world is normalized.

It is the argument of this article that these surveillance systems and practices are highly masculinized, at least on a theoretical level, because they depend on disembodied representations of the world and an evacuation of social relations and contexts. Moreover, when the logics of these systems are then applied back on social space and used to govern people and practices, social inequalities are both solidified and obscured. Because social control through surveillance happens at a distance, or as an automated part of the system, these inequalities are more likely to be perceived as individual rather than collective problems.

The masculinization of spaces and practices manifests differently in each of the cases that follow. With welfare systems, recipients are constructed as deviant and in need of paternalistic supervision, the likes of which tend to place undue financial, physical, and emotional burdens upon the poor. With healthcare systems for tracking inventory and people in hospitals, nursing staff and patients are constructed as unruly and in need of disciplined management by administrators and data systems. With transportation systems, imperatives of vehicular flow take priority over all other mobilities or uses of public streets such that the social space of the street—or what can be construed as an embodied experience of social space—is transfigured into a representational space of rational vehicular throughput.

Technological surveillance in each of these domains (welfare, healthcare, transportation) reveals degrees of rational control at a distance. Whereas unequal power relations can and do occur through body discrimination and context or use discrimination, the emphasis of this article is on discrimination by abstraction. The case made here is that discrimination by abstraction is a masculine and masculinizing property of these systems, but it is important to clarify that this does not mean the systems discriminate only against women. Instead, they effectively devalue embodied lived experience, social equality, and alternative forms of life. An easy mistake to make here is to conflate gender with sex. By arguing that these particular surveillance systems are gendered masculine, I am claiming that they draw on and reproduce traditionally masculine logics of rational, active, and disembodied control. Whether men or women are the subjects or objects of surveillance is

irrelevant for this analysis of discrimination by abstraction, even if the sex of the people involved would be pertinent for an analysis of context or use discrimination.

Welfare Benefit Systems

Surveillance of the poor is nothing new. Poor women of color, especially, are often the first targets of new surveillance systems. Examples proliferate. State-sponsored video surveillance in public places, for instance, inordinately focuses on spheres dominated by poor and minority women, such as public transportation systems in the United States (Nieto, Johnston-Dodds, & Simmons, 2002). The Medical University of South Carolina infamously instituted a program of involuntarily drug testing women who presented for obstetrics care at the Medicaid maternity ward and then arresting them if they tested positive for cocaine use—in some cases, women gave birth while handcuffed and were then transported straight to jail (Campbell, 2006). Throughout the U.S., welfare “client information systems” construct fine-grained portraits of the income and spending patterns of recipients, the majority of whom are women. These systems are then used to facilitate the scrutiny and control of poor women by case workers and others (Eubanks, 2006). In his superb study of women’s resistance to welfare surveillance systems, John Gilliom (2001) demonstrated how the concept of *privacy* is ultimately insufficient for analyzing the concerns of women subjected to forms of *bureaucratic surveillance* such as those examples proffered above; instead, surveillance is about relations of power, domination, and conflict that are embedded within institutional structures and fueled by dubious cultural assumptions about the criminality of the poor.

The case of electronic benefit transfer (EBT) systems for welfare and food-stamp recipients starkly demonstrates the impositions of database surveillance on poor women and others. These systems were mandated by the Welfare Reform Act of 1996 with the explicit purpose of minimizing fraud. The secondary goal of such systems is, ostensibly, to reduce the stigma associated with the use of food stamps because now a card, looking very much like an ATM card, is substituted for the stamps. EBT systems are perceived by policymakers to be effective at cracking down on abuse because they track all spending data (times, locations, items, etc.), which can then be scrutinized by case workers who can interrogate recipients and/or penalize them as they (or the automated systems) see fit.

EBT tracking is a form of electronic surveillance that can have serious ramifications for those monitored by it. The purchases of recipients are now scrutinized such that the creative arrangements they implement to make ends meet are cracked down upon. For example, if women choose to pay a babysitter with the EBT card, letting the babysitter purchase clothing or the like, then these purchases are flagged for investigation by case workers. It should be noted that the EBT cards double for the distribution of food stamp and other welfare benefits, so using them for purchasing clothing is not necessarily a violation of the rules

anyhow. Nonetheless, these women are made to feel like it is. Virginia Eubanks (2006) highlighted this surveillance dynamic by describing a video called *Watching Me*, which was produced by the women she works with at the Young Women's Christian Association (YWCA) in upstate New York:

[This video] opens with women reciting a litany of abuses: "He watches my every move," "He only lets me spend the money the way he says," "She doesn't like my friends," "He threatens to take my children away." Then the hook. "Do you think I'm talking about my boyfriend, my lover, my husband?," they ask. "No. I'm talking about my case worker." (p. 106)

The economic hardships associated with the implementation of EBT systems should not be underestimated. As described by Virginia Eubanks (2004, 2006), the EBT system has had a profound impact upon the lives of poor minority women in upstate New York and elsewhere. Before the advent of this system, food-stamp recipients were able to purchase food from local markets and cooperatives. Now, because these venues do not accept the magnetic-strip EBT cards, "benefits" recipients must hire a taxi and travel several miles to the nearest large chain supermarket that accepts the cards. This situation adds burdens of labor, time, and cost to the lives of these women and certainly impedes the larger assumed goals of economic assimilation.

As with many neoliberal policies, these systems combine elements of social control with the privatization of public goods and services. Neoliberalism, then, indicates (a) policies for the privatization or elimination of public goods, services, or spaces; (b) the simultaneous transformation of cultural sensibilities toward suspicion of all that is public; and (c) the monitoring, disciplining, and control of society, especially of the most vulnerable members of society (Brown, 2006; Duggan, 2003; Monahan, 2006a). The lucrative contracts for running EBT systems have been awarded to private companies, like Citicorp Services, Inc., which currently runs the systems in 34 states (Stegman, Lobenhofer, & Quinterno, 2003, p. 14). Meanwhile, EBT cardholders are charged fees for withdrawing cash from ATMs or requesting cash back from stores. These fees quickly add up. A *New York Times* article reported, for example, that a mother trying to support a family on US\$448 a month was charged up to US\$2.35 for each of her transactions throughout the month (Barstow, 1999). And an audit of the New York EBT system found that these surcharges added up to US\$700,151 per month, which are taken as profits for Citicorp (Feig, 2001, p. 13). In a very real sense, the meager public resources allotted for the poor are being expropriated by private corporations, leaving the poor (and even state policymakers) with little recourse for challenging these contractual arrangements once they are in place.

The example of the EBT system illustrates how neoliberal ideologies of privatization and responsibilization are being inscribed in technological systems and institutional arrangements. Although corporations may benefit tremendously from such arrangements, the poor—and especially poor women—are subjected to increased scrutiny and control. As Gilliom wrote, these emerging forms of

bureaucratic surveillance manifest “a way of seeing and knowing the world that excludes much of our true complexity while moving a small cluster of characteristics to the forefront” (Gilliom, 2001, p. 9). Surveillance, in other words, is not objective, but it is objectifying in a very restricted and disciplinary sense. Even if women were not the primary targets of such surveillance systems, by filtering out social context and objectifying others, these systems enforce masculinized representations of social experience and value.

Hospitals and RFID Systems

As with many other industries, hospitals are embracing advanced personnel and inventory tracking systems. The stated goals are to reduce medical error, save money, and generally increase the efficiency of healthcare delivery (Fisher & Monahan, 2008). Even President Bush has weighed in on the issue with a mandate for the incorporation of health information technology (HIT) systems into all U.S. medical practices (Bush, 2004). The intention of the tracking systems may not be explicitly for surveillance purposes, but the systems nevertheless possess affordances for such uses—especially for the tracking of nurses, the majority of whom are women (Timmons, 2003).³ The most interesting of these systems are those that use radio frequency identification (RFID) chips embedded in name tags, bracelets, or stickers for tracking people and medical equipment. Once a hospital is equipped with an RFID system, personnel and inventory can be tracked in “real time,” and locational databases can be generated to scrutinize the movement (or nonmovement) of people and objects at a later date. As might be expected, when these systems are used to track people, they apply almost exclusively to patients and nurses, and almost never to physicians or hospital management.

In writing about RFID systems in hospitals, Jill Fisher (2006) called attention to the important fact that intentionality is not a necessary condition for surveillance to be taking place. She explained: “Surveillance is about control; if the RFID systems can monitor groups or flows to regulate practices, then social control and thus surveillance are occurring” (p. 87). One of the ways that social control manifests is through the tracking of equipment. Traditionally, nurses hoard scarce equipment in the hospital so that they know where it is and can readily access it when needed. The staff learn to coordinate their activities and share both equipment and knowledge to fulfill their responsibilities in these complex and stressful workplaces. Thus, the cultivation of cooperative social relations among staff is necessary for hospitals to function. RFID systems for equipment are intended to rationalize these social systems so that computers can tell anyone where equipment is at any time. Coincidentally, such systems also strip away some of the expertise of nursing staff and simultaneously intensifying their workloads: Oftentimes, nurses are the ones charged with maintaining the system and rounding up equipment—on top of their usual duties. There is some evidence to suggest that nurses, in turn, may sabotage the system by destroying the RFID tags (Fisher, 2006).

The tracking of people represents a more obvious mechanism of surveillance and social control in hospital settings. This includes the tagging of patients and hospital staff. Patients are tagged with RFIDs to give them unique identifiers for the prevention of medical errors but also to track their movements from one ward to the next (from labwork, to surgery, to hospital room, etc.). With some systems, when patients are released from the hospital their RFID bracelets are cut, sending a signal to housekeeping to make up the room and free up the bed for another patient. This function was designed in response to nurses who would postpone reporting the release of a patient so that they could keep the flow of patients under their care more manageable. The RFID system functions as a “technological fix” to monitor the status of patients and increase management control over nursing staff by disallowing them to regulate their own workloads in this manner.

When administrators demand the tagging of nurses themselves, the level of surveillance can become oppressive. Even if the stated intention is *workflow management*, the implications for nurses are those of labor intensification, job insecurity, undesired scrutiny, and privacy loss (Fisher & Monahan, 2008). The social context becomes a “prickly”⁴ one that is hostile to worker empowerment and greatly reduces worker satisfaction. To date, such efforts at top-down micromanagement of staff with RFIDs have met with resistance. Only when implemented with complete “buy in” and participation from the nursing staff have such systems been tolerated (Fisher, 2006). The obligatory feature for nursing tolerance is an “off” switch on each RFID badge so that staff can take breaks without subjecting themselves to remote tracking (Fisher, 2006).

Nonetheless, RFID systems lend themselves to surveillance by means of their “passive” data collection, their increasing ubiquity,⁵ and their abstraction of social space. It is the control-at-a-distance dimension that especially enables the masculinization of work spaces and practices, meaning that individuals in these spaces are governed by paternalistic logics of control that exceed the spaces themselves. There is a discernable rationale at work behind the supposed neutrality of these systems. Fisher (2006) explained: “By reframing the actions of participants within the system as data, the tracking of those actions is artificially delinked from the politically charged realm of surveillance and the contextually complicated social and material spaces of hospitals” (p. 86). The RFID systems and their supplemental discourses objectify and rationalize space: They rescript what counts and what matters in those spaces, whereby the things that matter most are the things that can be counted. At the same time, the assumption is that this is an apolitical and natural process of technological development and that no surveillance can be occurring because only abstract flows are being monitored and managed. The facts of the system are thoroughly socially constructed and value laden, but the process of their construction is erased, leaving behind a system of social control that is highly reductive and surveillant.

Another more provocative use of RFIDs for patients involves implanting RFIDs into patients’ arms. The FDA approved this use of RFID implants for humans in 2004, giving the company Verichip the green light to cultivate medical

markets for these devices. To date, 65 hospitals in the United States have agreed to implement RFID implants for patients (CNN.com, 2006). In many ways, the process is similar to the microchipping of pets, such as dogs and cats, so that if they are lost, they can be scanned at local shelters and veterinarian offices and their owner information determined. For human patients, RFID implants are designed to help medical staff rapidly identify a person and his or her medical history, which might be especially helpful if the person is debilitated in some way and cannot communicate (Monahan & Wall, 2007). Outside of medical domains, other uses of these technologies are for security clearance in military, intelligence, or technology industry settings (Associated Press, 2006; Libbenga, 2006), or for the transmission of credit card information in nightclubs, as has been documented in Spain (Graham-Rowe, 2004). Theories about the commodification of the body are no longer figurative when credit information is embedded subcutaneously in people's arms.

A feminist critique of RFID implants would attend to the ways in which technologies of abstraction are literally embodied, whereas the social context is stripped away, reducing the body to data in the eyes of the system. Thus, concern about implants is not a call for bodily purity; we are all already cyborgs to varying degrees (Haraway, 1991, 1997). Instead, it is the potential for implants to realign power relations and to circumvent or discredit individual expertise—of patients to speak for themselves of their own bodily experiences, for instance—that is of particular concern. Apart from implants, other implications of hospital RFID systems include the potential loss of control by patients over their own personal information or the diminished ability of nurses to organize and manage their workplaces. The valence of these systems, in other words, is toward decontextualized representations and mechanisms of control.

Intelligent Transportation Systems

In the domain of transportation, electronic systems are being implemented across the United States, the United Kingdom, and elsewhere to automate and rationalize transportation control functions (Cameron, 2006; Patton, 2004). These “intelligent transportation systems” (ITS) consist of a host of interrelated technologies: road sensors, traffic cameras, global positioning systems (GPS), real time digital readouts for bus and train schedules, smart cards for public transit payments, traffic advisory signs that can be updated remotely, signal-timing mechanisms for traffic lights, and so forth. The idea behind ITS systems is that transportation demands are rapidly increasing beyond the capabilities of existing infrastructure to accommodate them, so by maximizing the efficiency of such systems through the semiautomated coordination of flows (of cars, buses, trains, etc.), transportation systems can be optimized for greater and faster throughput of vehicles, minimizing the need for new infrastructure.

Unlike the electronic surveillance systems being deployed for welfare benefits distribution or for tracking people and objects in hospitals, ITS utilizes video

surveillance cameras and has elaborate control rooms for individual traffic engineers to actively monitor transportation flows. In a sense, aspects of ITS look a lot more like what one might traditionally expect of surveillance: people sitting in rooms watching “video walls” displaying the many video feeds from all the cameras distributed throughout the city at intersections or along highways. Nonetheless, ITS engineers object passionately to any intimation that they manage surveillance systems (Monahan, 2007). For them, the term *surveillance* implies people watching people and scrutinizing their behavior, at best, or a Big Brother police state, at worst. Alternatively, they claim not to be interested in people at all, only in efficiently managing data and flows. According to them, the images of—or information about—people captured by the system are only depersonalized data, and as such people cannot be surveilled, even if their movements are controlled (Monahan, 2007).

If surveillance implies any systems of identification, tracking, monitoring, and data analysis for the purpose of control, as I have suggested, then ITS should be analyzed for its surveillance potential. As is the case with all data-generating systems, the intention to surveil is not necessary for the effects of surveillance to be felt—in real time or at a later date. ITS controls and rationalizes the movements of people in very specific ways, and the values and assumptions that undergird the design of these systems enforce certain social orders, perhaps even more effectively so because they are invisible to most people. For instance, these systems betray a discernable prejudice against bodies, especially in the form of pedestrians or bicyclists. A story related by one ITS traffic engineer illustrates this:

The primary purpose [of ITS] is to manage traffic. So there may be other reasons, there may be other uses. Unfortunately I watched a lady get hit by a car one day . . . A man made a right turn right in front of her, as she was walking across the street, and she literally walked into the van and got caught by it. I'm like “How in the hell could that happen,” and I was sitting here watching it the whole time, and I couldn't believe what I was watching. (Monahan, 2007)

In this quote, the engineer perceives the social space of the street through the lens of the ITS system. Because the system prioritizes automobile traffic, other forms of mobility are marginalized and devalued. Thus, he says the primary purpose is to manage *traffic*, meaning cars, even though the system itself is presented in government literature as coordinating multiple mobilities (Patton, 2004). From this dominant lens, pedestrians and bicyclists represent “systems noise” that must be attended to but that ultimately detracts from the primary mission of maximizing vehicular flow. Remarkably, in this narrative it is the woman who literally walked into the van, not the van that failed to yield the right of way to the pedestrian.

This bias against bodies is obscured apparently by the presumed neutrality of ITS. In turn, the abstract representational system is imposed back on social space, on streets and people, such that the values of its design become part of the background logic of everyday practices. Preferential treatment for certain mobilities over others is reinforced and normalized, along with accompanying inequalities,

whereby women, minorities, and the poor tend to be subjected to greater transportation burdens than their male, White, and relatively affluent counterparts (Graham & Marvin, 2001; Press, 2000). Another traffic engineer explained how the task of accommodating difference (in the form of pedestrians) presents special problems for the overall functionality of the system:

If you have to accommodate a lot of ped time, it means the intersections are going to take a longer time to get around, and the longer it takes an intersection to get around, typically, the slower the drive speed is, so then you end up with intersections where the speed limit's 45 miles an hour, and there's no way you can time it for that speed, so you end up timing it for a lower speed. One of the things you can do is if you don't think there are very many pedestrians there, you could maybe shorten that time down a little bit, but then [if] somebody presses the [walk] button, it knocks it out of sync . . . Then the darn thing is dropping out of sync all the time and it's making the situation worse. (Monahan, 2007)

Pedestrians are bodies, whereas cars are data objects. Because the system is designed to increase the flow of data objects and to value that outcome, pedestrians are problematic variables in the throughput equation. These bodies not only slow down the drive speed—they also possess the potential to destabilize the whole system and its synchronization of lights.

A case could be made that these transportation systems transform streets into “arteries,” making streets hostile to difference, whether different mobilities, different uses of streets and sidewalks, or different priorities for public space. With some possible exceptions of coordinating multiple modes of mass transit (Cameron, 2006; Patton, 2004), ITS, especially in the United States, appears to augment and informatize existing design biases, which prioritize the flow of private automobiles at the expense of all other modes of transportation or alternative uses of streets. For instance, the general absence of bike lanes and crosswalks in U.S. cities reveals a persistent, discriminating value system embedded in the infrastructure upon which ITS is overlaid.

Feminist scholars have long criticized the rational planning of cities, demonstrating how the idealized Euclidean grid of city planners functions as a “poem of male desires” (Hooper, 1998, cited in Graham & Marvin, 2001) of spatial control that also tends to artificially dichotomize social space into male and female spheres, with the female sphere forever subordinated to the male one (Hayden, 1981; Kirkup & Keller, 1992; Weisman, 1992). I propose that ITS be read against this backdrop. The systems are outgrowths of masculine rational planning; they dissect urban and suburban spaces, and they impose a paternalistic kind of order on what is perceived to be the disorderly world of the street.

Conclusions

This article has analyzed the gender implications of surveillance in the domains of welfare, healthcare, and transportation. Although their primary

intended purposes may not be surveillance, each of the technological systems in these domains imposes degrees of social control by means of their automated functions. The effects are those of surveillance. The argument has been that these systems operate on ideals of masculine control at a distance and as a result enforce a masculinization of space and practice. They do this by reducing social space and practice to abstract representations or data and then imposing those representations back on their contexts of derivation. Of course, individuals and groups resist and have agency, but the power relations are vastly asymmetrical and the technological systems have a normalizing effect that masks their inherent politics (Winner, 1986).

I introduced three conceptual categories for analyzing gender and technology: body discrimination, context or use discrimination, and discrimination by abstraction. Of these categories, scholarly attention to context or use discrimination with surveillance has been the most documented and theorized to date. Because most institutions, workplaces, and public and private spheres are already deeply patriarchal, new technological systems that are introduced into those arenas take on those values and reinforce those relations. This is why the finding of men scrutinizing women with surveillance systems is so prevalent and so unsurprising. What I have tried to develop here, however, is a line of inquiry into discrimination by abstraction. In the spirit of feminist critiques of the scientific revolution, the Enlightenment project, and the rational planning of cities, I have delved into the potential of new technological systems not only to surveil people but also to simultaneously represent and control people in very partial, discriminatory ways.

Rather than simply deconstruct surveillance as a form of masculine control, a valuable next step would be to identify and theorize conditions that lend themselves to power equalization along the lines of gender as well as race and class. Each of the three cases of discrimination by abstraction discussed in this article could be responded to with a reconstructive feminist approach. Such an approach would ground the technologies in social context, embodiment, and place. The concept of *situated knowledges* captures well this alternative epistemological orientation because it insists on the placement or “marking” of knowledge within its particular political, economic, and cultural contexts (Haraway, 1991). By contrast, the masculine tradition of science typically depends on “unmarked” knowledges, which “are those characterized by a presumption of objectivity that usually obfuscates their social embeddedness in white, male, or other dominant cultural perspectives” (Hess, 1997, p. 46). If situated knowledges were given more voice, value, and influence, then it is likely that spaces, systems, and social relations could be reconfigured in more just ways.

EBT systems for welfare and food-stamp distribution could be responded to, for instance, by questioning the foundational, discriminatory assumptions of the increasingly privatized welfare system. Social responsibility for the needs of everyone could be addressed through guaranteed wages, healthcare, childcare, and so on without falling back on an individualizing system of management and control

that presumes deviance. As Virginia Eubanks (2006) related, women on welfare are made to feel isolated and responsible for the failures of the welfare system to meet basic human needs. When they come together as a group to share their experiences, in a social context of self-conscious situated knowledge—as opposed to the presumed unmarked and objective knowledge of EBT databases—then their experiences are validated and their collective knowledge is expanded. Welfare could be grounded in context to emphasize rights over benefits, social over individual responsibility, and public over private management of the systems.

RFID tags in hospitals could be implemented as well, in a way that stressed social context, collective needs, and stakeholder participation. Jill Fisher (2006) wrote of one example where the decision to adopt an RFID system was made by nursing staff, instead of by hospital administrators; as a result, there was far greater buy in from hospital staff. A focus on embodiment would also highlight and legitimize any feelings of discomfort felt by hospital personnel about potential surveillance or labor intensification, which could lead to solutions that allowed for greater privacy or control over one's workplace. It may be the case, of course, that a situated, contextual approach to hospital technologies could lead to a decision that RFID systems were unacceptable in these environments.

Finally, ITS could be reconfigured to support multimodal transportation and perhaps even introduce degrees of friction for private automobiles so that streets could begin to be reclaimed as social places. The hegemony of the automobile could be disrupted so that transportation opportunities were equalized for all members of society, probably through a robust mass-transit system and disincentives for automobile use. London offers an example of such productive disincentives by limiting entry into the city by car and then using a surveillance system to assess fines if entry restrictions are violated (Glancy, 2004). Ultimately, reducing and slowing down vehicular throughput on streets could alter experiences of them, from spaces of transit to places of social exchange (Milun, 2007).

Although voyeurism of women by men may be the most obvious point for feminist critique of technological surveillance, the emptying out of social context through abstract representations may be far more damaging in the long run. Technologies of control at a distance exert a surveillant force on social practices and relations and now extend to almost all spheres of public life (e.g., streets, workplaces, schools, hospitals, etc.). The logics of technological, disembodied control are inscribed in infrastructures and institutions, facilitating the governance of people and the naturalization of inequalities. The reduction of people and social practices to data that can be easily manipulated is an exercise of power that demands feminist critique and intervention.

Notes

1. The focus on surveillance in these domains is complemented by superb ongoing research on surveillance in other public institutions, most notably in public education (e.g., Goldstein, 2004; Lewis, 2006; Lipman, 2006).

2. All casino workers and patrons are under intense surveillance, of course (Austrin & West, 2005; Borchart, 2007; Sallaz, 2002). The point of this example is to illustrate how sexist contexts can reproduce uniquely sexist uses of technologies, allowing for the reinforcement of those social relations.

3. The introduction of advanced surveillance technologies in hospitals is consistent with Foucault's (1977) observations about the spread of disciplinary systems and architectures throughout society. The *panopticon* is a compelling metaphor for how "docile bodies" are produced by technologies and techniques, discourses, and practices. Sandelowski (2000) further observed that the various technologies of surveillance and screening of hospital patients in the 20th century represents a "shift in the orientation of medicine from treatment and diagnosis to monitoring and recording" (pp. 136-137). I would call this one of the *techno-logics* of surveillance systems, of which monitoring patients' illnesses is part; the technologies themselves embody certain rationalities or privileged ways of seeing the world, which are then exerted on social spaces and practices. This is not a deterministic argument because it neither denies the active mediation of techno-logics by social context nor does it rule out the selective adaptation and appropriation of technologies by social actors. That said, the power of complex technological systems to shape knowledge and practice is usually significantly stronger than the capabilities of actors to challenge the dominant logics of these systems in any serious way.

4. The term *prickly space* is adopted from Flusty's (1997) provoking typology of inter-dictionary spaces.

5. RFID systems are now commonly used to track commercial and other products (by retailers, libraries, shipping distributors, the military, etc.), to regulate access (to buildings, parking structures, computer systems, etc.), and to tabulate charges (for toll roads, public transportation, etc.).

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