Introduction: Profiling Governmentality

Welfare claimants in Massachusetts who were 'hits' in a computer match for fraud had to fight for reinstatement on the basis of information ignored by the state. The Privacy Act is not deemed to cover such instances because they can be construed by matchers as 'routine use'. People who are computer match hits are denied the due process of law, which would give them the chance to confront their accusers with contrary evidence before steps are taken to apprehend wrongdoers (Lyon 1994: 50–51).

In one of the first comprehensive texts to engage in a post-Orwellian investigation of the emerging surveillance society, David Lyon complicates the debate over informational privacy by noting the significance of profiling demographic behaviour in governmental and administrative decision-making. Drawing upon the sphere of crime and punishment, Lyon notes that in an attempt to prevent offenses before they have even taken place, the state of Massachusetts always and already presupposes a statistically probable profile of guilt. The process of forecasting and supposedly preventing criminal behaviour, therefore, actively negates the representational process provided by the codification of American citizenship (for example, the constitution). Recognizing the increased technological sophistication of profiling procedures, William Bogard (1996: 27) similarly argues that computer facilitated profiling

simulate[s] surveillance in the sense that they precede and redouble the means of observation. Computer profiling ... is understood best not just as a technology of surveillance, but as a kind of surveillance in advance of surveillance, a technology of observation before the fact.

While numerous cultural and political questions stem from the introduction of electricity and computing in profiling populations and specific demographic groups, this essay shall focus on the the convergence of a number of surveillance technologies that have over the past five to ten years revolutionised the application and administration of such before the fact (or simulational) profiling techniques in contemporary western industrial societies.
1. It is no coincidence that the very first automated machines Hollerith's punch card tabulating machine were used to tabulate the 1890 American census (Alterman: 225).

(particularly Canada, the United Kingdom and the United States).

Polemically speaking, it will be my contention that the profiling logic of consumer marketing, as facilitated by Geographic Information Systems (GIS), increasingly facilitates the governmentalization of human practice (through rituals of consumerism) while affording the possibility of prescribing new spatial formations and relationships. It should be noted at the outset, then, that while the technological applications of GIS seemingly encapsulate the entire spectrum of spatial relations from geological resource management to natural disaster relief few studies have recognized the demographic and spatial implications unleashed by contemporary consumer culture and its accompanying technological strategies of marketing.

Drawing upon Michel Foucault and Gilles Deleuze's thoughts on power, space and the diagram-as-map, this paper will also problematize recent, influential analyses of the information economy offered by the likes of Oscar Gandy and Mark Poster, two radically incommensurate works that, nonetheless, share a common investment in the notion of dataveillance (the surveillance of a population through database technologies). While Gandy and Poster offer compelling arguments to support their systemic and technological studies of consumer surveillance, largely through a discussion of the segmentation and storage of consumer profiles in databases, I shall argue that both unfortunately downplay or altogether negate the significance of soliciting and mapping consumer behaviour. Through a discussion of the modes and modulations of data acquisition i.e. the construction, maintenance and applicability of consumer databases I conversely argue that consumer surveillance is predicated upon the active solicitation of psychographic data from individuals in exchange for promises of financial reward. The subsequent visual simulation of consumer databases, therein, reproduces \textit{ad infinitum} updated maps of markets that increasingly facilitate the forecasting and governmentalization of topological life.
In building upon Michel Foucault's (1991) object of study in his essay Governmentality, a population, this essay shall employ the concept of lifestyle [as codified under the rubric of psychographics, defined as that which governs ... reactions and behavior (Veal 1993: 234)] to investigate the simulational production of consumer spaces and routines. This essay will, as a consequence, review a number of contemporary marketing technologies/strategies, concluding with an investigation of GIS visualising as a simulation of governmentalized practices.2 While this project obviously draws some of its conceptual inertia from recent discussions of the restructuring logic of information/consumer societies along post-national, trans-national qua globalisation terms and problematics,3 it should also be read through my invocation of a diagrammatic method as an attempt to provide a rigorous theorisation of the technological reproduction (in the form of maps) of contemporary governmental spaces and practices.

The Sensibility of Diagrammatics: From modes to modulation

Foucault (1979), most renowned for his work on power, knowledge, government and space, offers a particularly poignant investigation of architecture, as manifested in his interpretation of Bentham's panopticon. As Foucault's archetypal case of confinement and the gaze, the panopticon prison as prime example of an architectural enclosure offered a spatial diagram that enabled the segmentation and categorization of bodies (that is, a space enabling the governing of behaviour). Thus, in the panopticon prison, the segmented or categorised prisoner was coded (fixed) in space through confinement while being inscribed by the invisible gaze. Discipline of the prisoner is as such, self discipline, since the prisoner can never actually see the guard in the panopticon's tower. The panopticon's inmates must, in other words, for the purposes of behaviour, assume that they are under constant surveillance. Power is hence rendered invisible.

While Foucault steadfastly maintained an affinity to sites of enclosure in other works, such as Madness and Civilization and The Birth of the Clinic such spaces nevertheless communicated distinct metaphorical possibilities, in that they offered a generalizable model of functioning: a way of defining power relations in terms of
everyday life... (1979: 205) At the beginning of the panopticon chapter in *Discipline and Punish*, for example, Foucault paints the picture of a dystopic neighborhood wherein households became for all intents and purposes prison cells to be gazed at, surveyed, categorised and disciplined. In so doing, Foucault's enclosures hint at an expanded conceptualisation of space and power; one in which the architectural space of the prison can be viewed on the socio-spatial level of neighborhood or community:

At the beginning of the 'lock up', the role of each of the inhabitants present in the town is laid down, one by one; this document bears the name, age, sex of everyone, notwithstanding his condition: a copy is sent to the intendant of the quarter, another to the office of the town hall, another to enable the syndic to make his daily role call. Everything that may be observed during the course of the visits - deaths, illnesses, complaints, irregularities - is noted down and transmitted to the intendants and magistrates. (Foucault 1979: 196)

While conceiving of an expanded view of geographical surveillance in which power is deployed (or enabled) with the assistance of both a spatial architecture (design) as well as indexical (linguistic) record keeping, Foucault nevertheless stressed the simulational nature of the panopticon in uncompromisingly optical terms. As a dream building of sorts, Foucault reminds us that the panopticon model was but a diagram of a mechanism of power reduced to its ideal form; its functioning, abstracted from any obstacle, resistance or friction, must be represented as a pure architectural and optical system: it is in fact a political technology that may and must be detached from any specific use (Foucault 1979: 205 emphasis added)

If we are to understand the effectivity of such diagrams in a contemporary setting (i.e. with respect to prevailing cultural practices), however, we must first recognise that discussions of power, knowledge and space have increasingly been transformed by new information technologies and networks, the globalisation of capitalist relations and a general trend towards downsized and decentralised State institutions. In response to such a implicit critique of contemporary sites of enclosures, and the taxonomy of the corporeal gaze, Foucault (1980: 68) himself noted in an interview that:

There is only one notion ... that is truly geographical, that of an archipelago. I used it only once, and that was to designate ... the carceral archipelago: the way in which a form of punitive system is physically dispersed yet at the same time covers the entirety of a society.

In the short essay, *Postscript on the Societies of Control*, Gilles Deleuze (1992: 4) also begins to question the applicability of spaces of enclosure with direct reference to his colleague Michel Foucault, arguing that disciplinary apparatuses (panopticon prison, hospitals and factories) function as mere enclosures or molds, distinct castings whereas in geographic spaces controls are a modulation... For Deleuze, the concept of modulation emphasized the means by which processes reproduced relations of power
Diagram s, Map s and M arks

through the increasingly complex reproduction of technological webs. The process of modulation, moreover, lies at the heart of machines or technological apparatuses that simulate a given set of relations; they are quite unlike Francisco Varela's allopoietic machines which produce something other than themselves... , while they engender and specify their own organisation and limits. Rather, metaphorically speaking, a diagrammatic method that draws upon a logic of modulation, is more in keeping with an autopoietic machine, since they undertake an incessant process of the replacement of their components as they must continually compensate for the external perturbations to which they are exposed (Guattari 1995: 39). Similarly, in the realm of socio-economic production Lash and Urry (1994: 122) argue that: Flexible production is more than just knowledge intensive. It is reflexive production...It is reflexive production in the sense that much work must go into the design of new products...

Hence, while Foucault makes passing reference to the geo-spatial qualities of particular chains of enclosures or molds (prisons), it is largely left to Gilles Deleuze (1988: 34) to endow the panopticon model with an extra/geo-graphic form in the contemporary conjuncture through a slightly different reading of the diagram. Emily Martin (1996: 102-103), thus, juxtaposes the Foucaultian archipelago...as an image that is too solid, monolithic and, possibly, slow moving with the Deleuzian notion of rhizome as nomadic movement, line of flight or trajectory. Deleuze also posits his contemporary rhizomatic inspired diagram as existing in a perpetual state between the architectural processes of drawing and building; and in so doing he attempts to avoid the primacy of the visual or fixed architectural structure (enclosure). Hence, in Deleuze's (1988: 35, 44) own words:

The diagram is no longer an auditory or visual archive but a map, a cartography that is coextensive with the whole social field. [Furthermore the]...diagram is a map, or rather several superimposed maps. And from one diagram to the next, new maps are drawn. Thus there is no diagram that does not also include, besides the points which it connects up, certain relatively free or unbound points, points of creativity, change and resistance, and it is perhaps with these that we ought to begin in order to understand the whole picture.

If we return to Foucault's governmental terms we could perhaps simply say that institutions or architectures work in concert (for instance as an archipelago of government). Yet, even so, the question that Deleuze attempts to address largely remains, namely: how can one account for or expand in theoretical terms the reproduction of government (defined by Foucault as technologies of the self) from an architectural space or a number of architectural enclosures working in concert into the greater realm of topology (geographical space)? To begin to answer this question, which can of course also be taken as a critique of Foucault's architectural gaze, I shall now turn to a
While one could subsume this phenomenon under the heading modernity, I find the various discussion of time-space collapse particularly telling. cf. (Harvey, 1989), Virilio (1986) and (1995: 23), as the study of movement [that] creates the event... in the form of highways, guidance systems, and so on, and Innis (1951) and (1972). See also Carey's (1989) discussions of time/space biased technologies.

very brief discussion of visual representations with an eye towards an operationalisation of time-space paths (Harvey 1989), or, that is to say, everyday spatial routines as initially produced by the emerging commuter/consumer culture. As we shall see later such quotidian spatial patterns serve as an important nodal point wherein psychographic and demographic data are both accumulated and, more importantly, initially codified.

4

Sorting the Panopticon: The limits of dataveillance

As an early form of technological representation, the process of framing or photography wrought a form of iconic classification that one could conceive of in McLuhanesque terms at least as an extension of the human eye. The invention of the flash bulb subsequently not only extended the public eye, but also disrupted the distinction between public/private space, the result being that individuals could be surveyed from any vantage point. The mobility of the gaze was thus complete. Or was it? Not unlike the architectural gaze of the panopticon, the photograph also required an unobstructed view to actualise that is, capture its subject. In this respect photography's mobility was limited to a linear gaze, albeit one that could be positioned at any height or angle.

The artificial representation of panoramic photography, conversely, set the stage for the moving image (or montage for Walter Benjamin), in general terms as manifested by the placement or juxtaposition of objects next to one another. (Buck-Morss 1991: 67) Yet again, however, the reconstructed landscape in panoramic photographs the first mechanical simulacra of sorts and the frame by frame motion of the moving picture both required visual linearity: in other words, an uncontested view of their subject. It is only with the introduction of technologies of the (in)visible defined as simulational, virtual or cybernetic systems that such obstacles could be overcome.

More to the point, when speaking of these particular representational technologies as vision machines one must always avoid the tendency to collapse the distinction between the manner or mode in which such apparatuses respectively accumulate data (for instance as attempting to frame an image by positioning the camera in various different spatial sites), the various stages of data codification, and lastly, the process by which
the object of inquiry is represented or actualised. In the first instance I would like to emphasize the processes by which individuals, through technologies of representation, position their respective technological apparatuses (in space) to capture their object of study or are themselves positioned. In the case of codification, I am simply interested in the various ways in which a process of formatting is facilitated by the object of study being in general terms transformed symbolically (for example, from analog to digital form, from language to numbers, and so on); and, in the last instance, that of actualisation, I am referring to the phenomenon of display or enunciation, as picture, moving image, speech or scream. (that is to say, as event, or finished or finalised product).

In offering a consumer data classification system Ronald Michman, similarly, provides a useful breakdown of not only sources of consumer information, but also the complexities involved in the process by which the segmentation of consumers draws upon various strategies and tactics of accumulation. In opposition to the example of linear or unidirectional vision machines, then, Michman’s schema highlights the process of solicitation as a particular form of exchange in which one divulges personal information in return for varying degrees of pleasure and/or the possibility or promise (which usually takes the form of becoming an entrant in a draw or lottery) of financial rebates, cash prizes, holiday cruises, and so forth. Before I explain this point further let us briefly examine Michman’s classification system.

In Lifestyle Market Segmentation Michman (1991) outlines four primary categories of data, which I argue, taken as a whole, operates as a particular indexical apparatus: firstly, geographic data, that encompasses region, climate, population density, market area and zip code; demographic data, including age, sex, family status, income, occupation, education, religion, race, nationality, and housing status; psychographic data, by which he means social class, values and lifestyles and personality; and lastly consumer behaviour data, which includes benefits sought, usage rate, loyalty, knowledge and attitude to specific products. Such data are retrieved through a myriad of private, state and state regulated organisations that regularly collect: personal identification such as drivers licenses, passports and marriage certificates; financial information in the form of credit reports, tax records and ATM transactions; insurance information; social services information, particularly in the health sector; along with real estate, entertainment, consumer, employment, educational and legal information (Gandy 1993: 63).

Each of Michman's categories of data play a unique role in distinguishing their applicability in an indexical apparatus such as a consumer database. To begin, demographic data serves as a quasi-baseline, in that it accumulates with the notable exceptions of race and nationality relatively quantifiable phenomena that actively
engage, on the surface, a teleological logic. This is not to say that an indexical apparatus fails to segment the public/consumer through demographics, rather my point is that demographic data, as baseline initially serves as the object rather than the subject of an indexical apparatus. With regard to psychographic data, however, we see a definite blurring of object/subject positions, wherein values are both categorised (object) and potentially actualised or changed (subject). This process is then crystallised in consumer behaviour data (which can be conceived of as an individual's overall lifestyle) wherein for the purposes of expanding and reforming markets, notions of usage and loyalty are actively and constantly in need of (re)formation.

**Databases: Codification and Formatting**

With Michman’s classification system in hand, let us return and touch upon the processes through which demographic, psychographic and behavioural data are made meaningful in the consumer database. The process of data acquisition for consumer databases as we have seen operates through a complex web of institutions, yet one commonality that unites these disparate practices and places is the need for data to be codified, which typically means transforming actions, habits, behaviours, lifestyles, into a simple system of classification. Gilbert and Warren (1995: 229), for example, classify consumer’s psychographic makeup their lifestyle profiles through the sum of highly generalised categories such as: the economizer, who scores high, for example, in the category of ....shop[ping] a lot for specials; the credit user, who is more likely to use credit for almost all purchases; the self-confident, for those who perceive themselves as independent minded; the home oriented, for those who ...would rather spend a quiet night at home than go to a party; and lastly, the fashionable, for those who believe it important to dress smartly.

While consumer information is routinely accumulated in everyday consumer patterns of behaviour in opening bank accounts, when using a supermarket discount scan card, making purchases with credit cards, renting videos, leasing cars, and so forth telemarketing and market research also play a significant role in the construction and maintenance of a consumer database. Such tactics are largely employed in particularly complex which is to say multicultural or transcultural/national (in other words, new markets) environments and communities. In this respect, we could view the process of coding as two distinct yet complementary processes: firstly, as the establishment of categories (for example, economizer, fashionable, and so on), which I refer to formatting; and secondly, as interpretations of consumer responses by market researchers, by which I mean the process of codification.

Rick Maxwell’s (1996: 107) ethnographic studies of market researchers (interviewers), as themselves quasi-ethnographers, suggests that this latter process, in the
form of human interaction between market researcher and consumer, should be thought of in secular terms as particular confessionals. The confessional serves to solicit honest responses to very personal questions that draw the interviewee into a position of possible judgment and redemption (that is to say, unto God, or in market terms, with respect to culturally acceptable definitions of taste). In order to solicit such confessionals the market researcher must gain the confidence of the interviewee through a relationship based upon a mutually respectful reciprocity. The desire for the interviewee to confess to enjoying product x in the hopes that their lifestyle will be represented in future commodities and market decisions must, in other words, be rewarded with an understanding or supportive response on the part of the researcher, or again promise of financial reward. Hence, in such a capacity, market researchers:

listen to stories about people’s relation to every imaginable kind of product, from household cleaners to perfumes and flight attendants. Market researchers interpret these stories as local assessments about the value people ascribe to goods and services, reporting what they find to corporate clients wishing to improve merchandising techniques in as many different markets as possible...The market researcher furnishes a place for people to report their beliefs and opinions, doubts and successes, gossip on the streets rumours from the neighbors. This secular confessional is the first station supplying the human face to global products (Maxwell 1996: 107-108).

While I find Maxwell’s conclusions of marketing researcher’s role to be overly optimistic and pluralistic, he does, nevertheless, add an interesting hermeneutic variable in the process of solicitation and codification, which is to say a front-line conversational or dialogic moment. Thus while Maxwell (1996a: 222) rightly notes that [t]he perceived innocuousness of the encounter of course does not eliminate domination; it just distances and ex-nominates the political economy, he nevertheless fails to relay the confessional as a technology of the self (as self discipline) to a governing logic or mode of information that attempts to reconfigure the rigidity of space, geography and national territory. Thus, from the local economy to the international flow of goods and services marketing researchers are posited as but a micro-political or human element in the codification of cultural difference. While such a process clearly

5. Maxwell (1996: 107) in fact claims that:: Interviewers and their supervisors are unique among cultural workers. They are charged with carrying people’s life stories across the divide separating two structurally differentiated groups: manufacturers and consumers.
redefines or re-formats hierarchies of categories, the cost of such market research particularly when conceived as an autonomous marketing strategy, deployed in the first and last instance clearly limits its importance in the operationalisation of a consumer database.

To return to my initial statements concerning Foucault, such criticisms of market research serves, more to the point, as a useful line of demarcation between the architectural and the archipelago. David Martin (1991: 24), for instance, among others describes the process of formatting, accumulating and coding data (for example, as engaging in marketing interviews) as drawing upon relational architectures. Although some have described the database as a smart technological apparatus which drives an intelligence or learning process that provides information for marketing decision making... (Jackson & Wang 1994: 29), the metaphors of architecture that one tends to find in the growing body of literature on database technologies both for the market and academia unfortunately all too often stop short of the logic of grounded (geographic) reflexivity: that is, they fail to assess the significance of mapping and updating databases (or that they limit such assessments, such diagnoses, to the realm of the indexical, in other words, as lists). As previously mentioned, I would loosely classify such approaches under the heading dataveillance, as initially conceived of by computer scientist Roger Clarke. David Lyon (ibid 47: 48) notes that Clarke used the term dataveillance to highlight the ways that the convergence of new technologies has confronted the advanced societies with a series of very rapid changes in the quantity, if not the quality, of surveillance. Referring to the Orwellian scenario, he says that ubiquitous two-way television a la 1984 has not arrived even though it is readily deliverable. It is unnecessary because dataveillance is technically and economically superior.

Dataveillance should not, however, be necessarily confused with an exclusive ocularcentric mode of inquiry (metaphorical speaking, within the constraints of visual sightlines afforded by an architectural structure), though this is indeed apparent in Clarke's analogous use of the visual medium of television to discuss, in my opinion, a very limited understanding of interactivity (or what I have referred to as solicitation). Mark Poster's (1990: 75) investigation of database technologies, for instance, conversely tends to privilege language oversight within the indexical architectures of the database. As a result, Poster (1990: 69) argues in comparison to the example of television that:

The database represents a somewhat different language situation. In this case the individual is not addressed at all; he or she receives no messages. Rather the communication goes the other way around. The individual, usually indirectly, sends messages to the database. In one sense the database is nothing more than a repository of messages.
There are two points to make here with respect to the limits of dataveillance: firstly, as evidenced in the above quotation, the process of exchange (or surveillance) tends to slip into a deterministic, one-way flow from the consumer to the database. I would maintain, however, that everyday routines or interactions in a consumer society are wrought with a series of performative duties (such as confessionals or supermarket rebate card swipes) that by design attempt to solicit demographic and psychographic information in exchange for varying degrees and manifestations (that is, pleasure, cash discounts and so on) of reciprocity. Secondly, dataveillance's focus on the database has in large part been technologically surpassed by the recent explosion of technological advances in computer technology and telecommunications as manifested in an increasingly complex web or convergence of technologies of data accumulation, codification, formatting and actualisation. Such a process is particularly illustrative at the mode of actualisation (or visual presentation) given the increasing need to govern trans-jurisdictional space (which can in part be attributed to the on-going deregulation/privatisation of State governments and their respective apparatuses).

In turning to the process of actualising an indexical apparatus in a marketing culture, and in outdistancing the architecture of dataveillance with the help of Michman let us examine the operationalisation of geographic data. Yet before we begin, it is important to note at the outset that while geographical data may serve to economise or rationalise (in short, to make efficient) the everyday communication and circulation of information in the nation-state (such as zip/postal codes in mail delivery), its larger technological role is one of topological actualisation (quite simply, locating the desired markets). This is a critical point that Gandy, for example, largely avoids in his Foucauldian analysis of the information economy. In other words, Gandy's Panopticon Sort (1993: 10) logically mirrors Bentham's panoptic prison and Michman's previous three modes of indexical apparatuses in that it

serves as a powerful metaphorical resource for representing the contemporary technology of segmentation and targeting, which involves surveillance of consumers, their isolation into classes and categories, and their use in market tests that have the character of experiments.

Until this point in this essay, then, there have been many a segmented, categorised, disciplined, targeted, codified, formatted, yet little talk or analysis of diagnosis or, most importantly, actualisation. It is my contention that without visualising (in the last instance) an indexical apparatus in graphical or iconic models there can be only frustrated attempts at integrating strategies of marketing with the actual delivery of commodities and services and as a result a limited ability of governing or prescribing spatial reformation. As a consequence, taking the example of zip/postal codes (or political jurisdictions such as counties or school districts or telephone area codes) in the indexical
apparatus, it is important to distinguish between categorisation or coding of lifestyle and consumer habits in databases and the process of coding space. Clearly in the former we are still segmenting to use Foucault's terms, we are distinguishing between this and that particular quality. Such an argument is, for example, clearly at work in Foucault's (1986: 23) thoughts on demography in situs, as opposed to a topology of psychographics or lifestyle:

the problem of siting or placement arises for mankind in terms of demography. This problem of the human site or living space is not simply that of knowing whether there will be enough space for men in the world - a problem that is certainly quite important - but also that of knowing what relations of propinquity, what type of storage, circulation, marking, and classification of human elements should be adopted in a given situation in order to achieve a given end. Our epoch is one in which space takes for us the form of relations among sites.

In coding space, however, we can literally begin to fill in or supplement the explorer's map, if you will, endowing geographical space with a multitude of consumer demographics, attitudes and practices. In short, the process of coding geographical information or mapping enables a visualisation of the indexical apparatus through a secondary mode of coding, called geo-coding. As a result, it should be of no surprise that such a process requires a graphical spatialisation of such indices, not unlike that provided by the map to the colonial explorer.

Technologies of Mapping: Geographic Information Systems

With respect to GIS the visualisation of indexical data does not merely make visible the hitherto unforeseen, rather, as was the case with the Deleuzian diagram, it constructs and reconstructs an almost infinite series or chains of equivalence. Such chains are henceforth actualised by their continued reference to geographic space, in other words, this is where you can find these relationships! As a result, and in speaking directly to the operationalisation of maps, Denis Wood (1992: 10) notes that it is this ability to link the territory with what comes with it... that endows maps with a continuous effectiveness. Yet, to carry this process one step further, and in outdistancing the architectural model of Foucault, as reproduced by Gandy and Lyon's dataveillance in the information economy and marketing culture, it is the process of continuation, this adaptability, which effectively (re)produces a particular mobility in time and space. In other words, previous to the information economy, while [m]aps existed, of course... they were maps that were drawn by hand and every time a minor change occurred they had to be redone by hand, a tediously slow process (Rundles 1992: 41).

GIS is a fundamental component in the electronic mapping of information, in that it introduces a particular (re)flexibility in managing and deploying indexical apparatuses. By way of explanation, one must be careful when using the term GIS since it has
historically referred to varying modes or models of spatial analysis, rather than any one particular computer program or product. John Pickles (1995: 3), for instance, argues that GIS has at one time or another been used to refer to or describe: a field of interdisciplinary researchers; a particular community

an approach to geographic inquiry and spatial data handling; a series of technologies for collecting, manipulating and representing spatial information; a way of thinking about spatial data; a commodified object that has monetary potential and value; and a technical tool that has strategic value.

Land-based GIS technology of the sort deployed in contemporary marketing campaigns, however, dates back to the early 1970's when Del Hock, now Chairman of Colorado's principal utility company, Public Service Co., worked as director of Systems and Data Processing. Hock states that up until that time [a]ll the (computer) emphasis had been on accounting and billing...But I thought, How do we better utilize the excess capacity? He adds, Geography is a very important part of our business ... Every facility and customer has a unique geographical location. I thought, How do we create a computer model of that system? Hock realised his goal of a geographic information program by joining geographic and spatial information where his customers were located in relation to the company's services (Parent & Konty 1992).

Although GIS technologies were largely relegated to large corporations and government agencies in the 1980 and early 1990s, their prescriptive logic produced by an increase in speed and accuracy or rather depth in mappable information coupled with falling prices and personal computer (pc) compatibility have had obvious benefits for a range of activities in both the marketplace and politics. Thus, when the democratic party mapped areas with large concentrations of AFL-CIO members and found: a broad swath of steelworkers stretching across southern Missouri and Illinois, where [they] hadn't expected to find them (American Demographics 1993: 14) during the American presidential election campaign of 1992 it soon became apparent that future applications of GIS could also be used for the purpose of forecasting political opinion.
In mapping or visualising what if scenarios, for example, campaigns could pre-test products or slogans on yet to be formed geographic communities. In this capacity GIS can be viewed as simulational as well as representational (Goss 1995: 182), in that it operates outside of the architectural, to bring us back to Foucault. In other words, the processing of visualising indexical apparatuses once geocoded, relies upon an implosion of our corporeal field of vision. As a result we are no longer limited to a corporeal or architectural gaze, nor, perhaps more importantly, are we gazed at by a singular big brother of (panopticon) sorts.

**The Cleaning Cycle**

It is ... subsumed and amassed cultural capital that mapmaking societies bring to the task of making maps; not the patiently acquired mastery of this or that individual more or less carefully passed on often in secret through speech or gesture or inculcated habit. It is the endlessly reproduced and everywhere disseminated wisdom of thousands of such individuals, caught up, stored, annotated, corrected, indexed, epitomised, reduced to formulae, taught by rote, so that what once was an epochal discovery or invention is reduced to common knowledge, grounded into a taken-for-granted fact of life (Wood: 48).

In attempting to outdistance the utility of database technology (and dataveillance), I have not directly addressed the question of why computerized outputs need be graphic or iconic in form. Do we not, for example, teach students to employ powerful words in lieu of run-on sentences? Are not some words richer in meaning than others? Or do they merely serve as metaphors? In other words, are they not indexical apparatuses in and of themselves? The problem I would like to briefly discuss then is this technological difference between the database as particular grammatical lexicon and the (electronic) map as graphic image. I would like to question the manner in which database outputs (lists) and maps assist in the process of spatial re-production, as opposed to their often deterministic relationship with the corporeal self (compare McLuhan, Ong) or their unproblematic placement or more to the point function within a semiotic structure of meaning (compare de Saussure, Barthes, Eco).

While one could rightly argue on purely technological grounds that the GIS map-as-screen can condense data more efficiently than database outputs (thus mirroring the corporeal argument), or that the power of maps stem from their representational status as iconic/easily recognisable signs, such approaches nevertheless fail to account for the reflexive element of reproduction, spurred on by the need to accumulate increasingly more precise data-profiles. I would ask therefore, how are we to understand the process of condensation (as reduction of meaning) within the metaphorically speaking larger weather (signification) system (which is to highlight not only what is deemed significant, but moreover what is discarded as seemingly unhelpful or problematic)? Furthermore,
what is lost or gained (culturally, ethically, technically, epistemologically) in the process of condensation (or summary, reduction, codification, and so on)? And lastly, how does this discriminatory element relate to or indeed (re)produce the system of signification?

Since the process of geocoding is integral to the workings of both indexical (database) and graphical (GIS/map) modes of representation, or to be more precise, since it is an essential means to actualise (read locate) each technologies’ object of study, it would seem an appropriate point of departure, comparatively speaking. Geocoding psychographics from a database, for example, is essential for successful mail-order campaigns (catalogues) yet at the same time it would seem that there is little need to view in the graphical sense of the term the addresses and geographical entity in question (in other words, the topographical market). As such, this indexical approach could be interpreted as making a clear distinction between human features and topological characteristics.

It is important to understand [therefore] that geocoding software applications (i.e. geocoders) do not require a mapping system [such as GIS]. A geocoder simply reads data, analyses the address specific portion of the data and then attempts to match each address with a location, a latitude and longitude (MapInfo 1995: 3).

That which clearly separates the two representational systems, on the other hand, is the treatment or abstraction of human/psychographic data from geographic considerations. Thus, while databases operationalise geocoding techniques to locate their (population-coded) market (as means to an end), it is the very process of geocoding that, conversely, allows for (shall we say re-start) the accumulation, synthesis and (re)presentation of a multiplicity of topologically indexed data in the form of GIS/maps. Before I offer a more concrete example with regard to satellite technology, let us first clearly distinguish the characteristics of human and topological data.

data relating to dynamic human populations are very different in their geographic properties to those relating to the physical world: the location of any individual is almost always referenced via some other spatial object, such as a household address or a census data collection unit. Unlike a road intersection or a mountain summit, we are rarely able to define the location of an individual simply by giving their map reference (D. Martin: 4-5).

It is this attempt to achieve a scientific or true picture of both the geographic and human world that as opposed to database technologies seems to drive the reflexive or diagrammatic qualities of GIS. Yet if the human world is unpredictable, in constant flux and change (spatially speaking), how is an accurate picture ever actualised? The short answer is by cleaning. If we believe Group 1 Software corporation, for example, Dirty data is the number one cause behind inaccurate mapping analysis (MapWorld 1996: 5). In the case of the database, then, the processes of capturing the world out there must be
up to date, it cannot be missing a zip/postal code, lest a fund raising letter from the local Member of Parliament, catalogue from L.L. Bean or invitation to switch to AT&T go awry. Computer cleansing programs such as those marketed by Group 1 therefore manage the database (in other words, finding the correct doorstep) and in a topological sense reconstruct the mythic interest of the map (as the true picture of the world). In this respect one could view the dirt (or incorrect data) as that which escapes initial attempts at cleaning (mis-codedformatted) hence driving the never ending cycle towards pure, white, clean data (the accurate representation of human topography).

The Celestial Gaze and the Layering of (E)motion

Recent advances in non-terrestrial surveillance technologies have also facilitated the drive towards both topographical and human cleanliness. Space technologies such as satellite imaging, for instance (which have not surprisingly captured Hollywood's popular imagination⁸), have since the American lunar landing sought to invert the heavenly gaze. In her remarks on weather satellite technologies Jody Berland (1996: 123) captures this phenomenon quite eloquently when stating that: when we look at the weather to find out what is coming, we now take the viewpoint of the angels: looking down at the earth, rather than up at the sky.

Apart from cleaning data, satellite technologies also serve to accumulate previously unattainable data through various means or modes of acquisition. Unlike Berland's visual metaphor, however, satellite remote sensing no longer utilize a simple photographic purely visual lens to take snap shots of the earth's surface. The first American (NASA) satellites in operation by 1960 did begin in part as eye in the sky technologies. TIROS-N satellites (the T standing for television), for instance, relied upon either television or film to produce images of the earth. Upon completion, the photographs were jettisoned into the earth's atmosphere and with the assistance of parachutes retrieved quite remarkably in mid-air by a specially outfitted military plane (Wood 1992: 10). In part, due to obvious limitations of cloud cover obscuring the earth's surface, future satellites opted for multi-sensorial technologies such as the Advanced Very High Resolution Radiometer, a High Resolution...
Infrared Sounder...a Stratospheric Sounder Unit, a Microwave Sounder Unit, [and] a Data Collection System and a Space Environment Monitor (Wood 1992: 49). The recent portrait map of the gleaming, unobscured, cloud free terrestrial map offered by Tom Van Sant in the November 1990 issue of National Geographic, dubbed A Clear Day, thus exemplifies not only the limitations of the (exclusively) visual image, but also a subconscious drive for cleanliness the pan-spherical gaze manifested in simulative terms (Wood 1992: 49).

While recent satellite technologies can offer ground resolution anywhere from thirty to as little as eight meters, largely through the reflection of radiation emanating from the earth's surface (D. Martin: 20) (or rather, depths), Global Positioning Systems' (GPS) return to more ethnographic/geological strategies in data accumulation has not surprisingly given the rhetoric of objectivity and the subsequent claims to science that some ethnographic approaches require promised an even more accurate (true) picture of the world (hence offering a stronger cleaning solution for the muddied data-terrain). Born of the American Department of Defense9 (DOD), GPS facilitates an exactitude in geographical mapping previously unimagined in the history of technology. With a hand-held computer an individual can at any time, drawing upon twenty-four radio emanating GPS satellites positioned some 19,100km (ibid) above the earth's surface, obtain their precise longitude and latitude coordinates. Available in the U.S. for only $150, according to the U.S. based GIS corporation MapInfo, GPS Technology is ideal for real-time tracking such as fleet management and 911 response, and for field data collection such as rural addressing. Many municipalities now gather this information from a combination of tax maps, aerial photographs and odometer readings. GPS greatly simplifies this task because it is now possible to plot precise positions and input them directly into a computer to create a real-time database (Mapworld: 16).

In comparison to the database, and in drawing upon GPS and other remote sensing technologies from surveillance planes to satellite imaging, GIS' mapping of space in attempting to merge geographical with human data (cleaning) both condenses and reconstructs the various means/modes of data acquisition (or

9. It should be noted that Russia has a similar system, drawing upon twenty-two satellites. (Aviation Week & Space Technology 1995).

Space and Culture 3
surveillance). The layering of such processes in the form of maps is thus in constant motion, informed and updated by the ever changing human condition (new addresses, roads, housing projects, etc.). The emotive investments of the populace—the likes, dislikes and desires of demographic groups—likewise, once geocoded, can be located, capitalized upon, in the case of incorrect data, cleaned, or most importantly forecasted-in-space. Thus, in comparing this process of layering (e)motion (in the form of a diagram-map) with hinged flap maps that are laid over top each other, Phil Parent (1992: 26) concludes that the...concept of showing spatial and temporal change by overlays is a crucial underpinning of GIS.

Conclusions

As regenerative machines that by simulating time/space relations, enable one to locate, rationalise, prescribe and hence govern the spatial patterns of consumerism and everyday life, the power of such simulational maps can be conceived of as both documents in/and for action. In technological terms, while GIS and database technologies are both useful in finding markets, I would like to suggest that the ability to not only index but also to layer data in the form of a simulation (map) affords a particular diagnostic and hence governmental capacity which integrates variables in a forecasting mode or inquiry. For the commercial sector this layering of data (in the form of a map) enables individuals and companies to locate future profitable sites and routes in/through which business can be conducted, based in large part upon their geographic proximity to (among other factors) markets, means of transportation, adequate energy sources, and educated/trained human resources. The visualising of geographic data, in short, anchors, albeit in simulational terms, the movement of goods and services thus providing coordinates from which one may plot such entrepreneurial strategies.

Although I have taken some steps to distance the machinations of GIS mapping from database technologies, particularly in highlighting the manner in which the former draws upon a myriad of data-sources (for instance, multi-sensorial data-accumulators), it is only through an eternal return to evoke Nietzsche to the level of the everyday that we can begin to talk about the rationalisation or governmentatisation of time/space paths (as the reflexive process between database and map). In other words, in opposition again to the works of Poster and Gandy or dataveillance in general, consumer behaviour/psychographic data is accumulated, formatted and codified by way of numerous solicitations of interactivity, most explicitly manifest in the face-to-face questions posed by the market researcher, but also less obviously which is to say increasingly ubiquitous and pervasively present in the everyday performative duties required of commodity purchasing. One could conclude that the consumer is therefore governed by a logic of representation that manifests itself in the exchange of personal
information in return for (promised) financial rebate. The power of marketing strategies is thus to some degree cynically self-imposed by the consumer on themselves.

So that I do not leave the reader with the impression that it is the consumer who fully, knowingly or consciously acquiesces to the strategies of marketing (nor would I simply invert this logic), let us not forget that such practices are also manifested by their situation or rather placement in spatial patterns and routines that have as much to do with an individual’s own will than with a techno-topologically informed will to power (that is as we have seen in the case of the panopticon, the strategic arrangement of space to facilitate the governing of a population). In this respect one can literally trace the spatial patterns of a consumers behaviour from the residual trail left behind by their respective purchases/performativity. In the case of missing persons or stolen credit cards then authorities such as the police merely map (or retrace) the whereabouts of the perpetrators by locating the points of their illegal purchases. With regard to the larger picture (or map), Lyon (1994: 52) thus argues that there is a tendency for surveillance systems increasingly to depend on their subjects to trigger their activity, by means of a trail of transactional information left behind as we make purchases of phone calls, submit claims or state preferences.

It is, however, not exclusively the power to retrace (and retrace and...) said trails of data that affords GIS its particular effectiveness in the strategies of marketing; rather, it is the layering of (e)motion that engenders in topological terms a reflexive drive towards both actualising and prescribing particular markets-in-space. While I have discussed the layering of motion in largely custodial qua reflexive terms as the technological cycle of cleaning dirt (such as GPS/remote sensing) it is more importantly, to conclude, the layering of emotion (defined as behaviours, likes, dislikes, in short lifestyle) on top of space that provides the diagrammatic (map-making) link to governing or prescribing the very routes and time/space paths that afford our everyday needs, wants, desires and duties. To map is therefore not only to document a governmentalised space, it is, moreover, itself an ongoing attempt at governing space and lifestyle.

University of Massachusetts-Amherst
Amherst, USA

Acknowledgements

I would like to thank Brianle G. Chang, Henry Geddes and Justin Lewis for comments on earlier drafts on this essay. Portions of this work have been funded by the Quebec government’s Fonds FCAR.

References

. 1988. Foucault, Minneapolis: University of Minnesota Press
Goss, J. 1995. We Know Who You Are and We Know Where You Live: The Instrumental Rationality of Geodemographic Systems, Economic Geography, Vol. 71, 2
Innis, H. 1972. Empire and Communications, Toronto: University of Toronto Press
. 1951. The Bias of Communication, Toronto: University of Toronto Press

Habitable Spaces
Diagram s, Map s and M arkets

. 1996 a. Ethics and Identity in Global Market Research , Cultural Studies, 10:2
. 1986. Speed and Politics: An Essay on Dromology, New York: Semiotext(e)
Diagram s, Map s and M arkets